Cataract surgery output and cost of hospitalization for cataract surgery in the University of Benin Teaching Hospital

A. I. Osahon
Dept of Ophthalmology, University of Benin Teaching Hospital, P.M.B. 1111, Benin City, Edo State, Nigeria

Summary

Cataract is the most common cause of curable blindness in Nigeria[1,2]. Nigeria has an overall population of approximately 110 million with a blindness prevalence rate of 1%. Cataract is responsible for 30 – 60% of the blindness[1,2]. A great deal of blindness prevention activity should therefore centre around cataract surgery if we are to clear out cataract back log of over ½ a million individuals. Only 106 cataract surgeries were performed in the 24 months reviewed. There were 75 males and 31 females. This study highlights the meagre contribution of teaching hospitals to the prevention of blindness. Several factors including ignorance, poverty, socioeconomic and political tensions and teaching hospital bureaucracy are no doubt responsible for this. Hospitalization for cataract surgery is becoming very unpopular in the developed world as this tends to increase cost of surgery. The need to establish cataract surgery outreach services and adopt day case surgical procedures in our hospitals cannot be over emphasized as strategies for clearing our national cataract backlog.

Keywords: ***Cataract surgery, Output, Cost, Hospitalization.***

Résumé

La cataracte avait la fréquence la plus élevée comme la cause de la cécité guérissable au Nigéria[1,2]. Approximativement, le total de la population nigériane est 110 million et le taux de la fréquence de la cécité est 1%. La cataracte est la cause principale de 30 à 60% cas des cécité[1,2]. Si nous devons réussir à éliminer les arrièrs problèmes des cataractes de plus de ½ million cas, nos efforts sur la chirurgie de cataracte devraient porter principalement sur des programmes visant sur des mesures préventives contre les incidences de la cécité. 106 cas des chirurgies cataractes avaient été opérées durant la période de 24 mois de cette étude. Il y avait en total 75 mâles et 31 femmes. Cette étude met en relief le maigre effort par rapport à la contribution des centre hospitaliers universitaires à l'égard de mesures préventives contre l'inciedence de la cécité. Des problèmes tels que l'ignorance, la poavreté, des problèmes relatifs à l'économique sociale, problèmes politiques et à la bureaucracie au sien des centres hospitaliers universitaires sont sans doute responsables.

Hospitalisation des malades pour la chirurgie de la cataracte devient de plus en plus mal accenillie dans les pays développés du monde parceque cette opération est coûteuse. On a besoin de mettre en place les services chirurgicals des cataractes à la population rurale et instaurer le processus d'un dossier médical journalier pour la chirurgie dans tous les hôpitaux comme stratégie afin de resoudre le problème national portant sur les arrieres des cataractes.

Introduction

Cataract implies opacification of the crystalline lens and it is the leading cause of blindness in Nigeria[1,2]. Fortunately blindness from cataract is reversible through surgery. Generally, the cataract surgical rate (CSR) i.e. the number of cataract operations performed per million population per year is very low, being less than 5000 in most African countries[3].

Cost efficiency of health care has assumed increased importance world wide. Cataract surgery with or without intraocular lens implantation is the most frequently performed operation in Ophthalmology and it may be performed in different ways and at different costs. A large part of the cost of cataract surgery is related to the length of in-patient stay which has been steadily decreasing world wide in recent years[4]. Day case cataract surgery has become very popular over the years and has been shown to be safe and popular with patients. Cataract surgery is one of the operations recommended for day case by the audit commission[5,6].

Patients and methods

Information on the total number of Ophthalmic surgeries performed over a 2 year period 1997 and 1998 was obtained from the theatre records. This also included the total number of cataract surgeries performed in the 2 year period.

The cost of items which constitute the "Shopping List" for cataract surgery was also obtained from the Hospital Pharmacy. Revenue Department provided information on the cost implication for cataract surgery under local anaesthesia and the cost for cataract surgery under general anaesthesia. The fee for admission deposit and operation fees for ophthalmic patients were also obtained.

Results

A total of 273 ophthalmic surgeries were performed over the 2 year period. One hundred and forty-two surgeries in 1997 and 131 in 1998. Of the 273 ophthalmic surgeries there were 106 cataract surgeries. Fifty-seven cataract surgeries were performed in 1997 and only 49 in 1998.

Table 1 Age and sex distribution of patients

Age group	M	F	Total	% of Total
0 - 10	4	3	7	6.60
11-50	6	7	13	12.27
50 and above	65	21	86	81.13
Total	75	31	106	100

Out of the 106 cataract surgries performed, there were 72 males and 34 females. All the adult (96) patients had their surgeries under local except 3 of the adult patients who had the surgeries under general anaesthesia because they were apprehensive. All the children also had general anaesthesia. All the adult patients before the age of 40 had extracapsular cataract extraction; those above had intracapsular cataract extraction. The children all had congenital cataract and had needling with aspiration.

Correspondence

Table 2 Occupation of Cataract surgery patients

Category	No.	% of Total
House wives	16	15.09
Traders	8	7.54
Civil Servants	3	2.82
Retired persons	18	16.98
Unemployed	12	11.32
Farmers	29	27.35
Children	7	6.60
Casual labourers	9	8.49
Students	4	3.77
Total	106	100

Average number of days in hospital for one eye was 7 days for unilateral cases and for bilateral cases 12 days since each eye is usually done 1 week apart in the bilateral cases.

Most of the patients who benefited from cataract surgery were farmers (27.35%). This is not unusual as farming is the major occupation of Nigerians in this locality. Retired persons came second (16.98%), followed by the house wives (15.09%).

Table 3 Breakdown of cost of hospitalisation for cataract surgery

	Amount N
Registration of patients	120.00
Admission deposit for cataract surgery patients	2,000.00
Cataract surgery fee	2,400.00
Additional cost if surgery is to be performed under general anaesthesia	550.00
Items which constitute shopping list	5,365.00
Cost of 3 or more additional nights in hospital if patients had one complication or the other	1,200.00
Grand total approx.	11,855.00

Note: 125 N = 1US Dollar

During the period under review the average cost of surgery and hospitalization were found to be between N13,000.00 and N15,000.00. The cost is reduced by N550.00 if it is done under local. It is also reduced by another N2,000.00 (Admission deposit) if done as day case. During the period under review, the National Minimum Wage was N2,000.00 monthly, It was also observed that because of the inflationary trend the cost of surgery and hospitalization were often reviewed upwards in this tertiary institution.

Discussion

This study confirmed previous hospital based studies that cataract surgery output from tertiary health institutions in Nigeria is very low[7,8]. In the 2 year period reviewed only 106 cataract surgeries were performed. With this meagre contribution it may take several decades to clear the National cataract back log of 500,000 in Nigeria.

The study also revealed that about 90% of cataract surgeries can be performed under local and that these can possibly be done more cheaply as day cases. Hospitalization attracts additional expenses which can be avoided.

The training of Medical Students and Resident Doctors is also adversely jeopardized by this low output. In this centre, we have an average of 5 Consultants, 8 Resident doctors and 400 Medical students (in groups of 40 per rotation) and about 15 ophthalmic Nurses in training. The cataract surgery out of 106 in 24 months is grossly inadequate for training.

When the Nigerian economy was better in the 70s and early 80s there was no need for a long shopping list for patients. Such items as syringes, bandages, etc listed out in the shopping list were all abundant in the hospital wards and theatres. These things are no longer available because of poor funding of the health sector. Patients have to wander about trying to purchase these items before they can settle down to have their surgeries. This does not make for a patient friendly hospital.

Against this background certain measures have now been instituted to help alleviate the sufferings of patients thereby improving the patients turnover. The surgical pack system has now been put in place whereby the items which make up the shopping list and the consumables are al bought by the hospital and packed together for patients' use. Patients who are billed for surgery no longer wander about in search of these items but come in to pay both eye surgery fee and the fee for the surgical pack. It is hoped that this patient friendly approach will help improve the turnover of patients.

The second measure is that this department has emulated what is being practiced in many academic departments of Ophthalmology[7-10] by adopting the cataract surgery outreach programme in collaboration with district hospitals and health centres to carry out day case cataract surgery in the community.

Recently following a screening exercise in the community, we had a cataract surgery outreach programme in which we performed 15 cataract surgeries as day cases within a 3 day period. These surgeries were very successful with very few complications and no cases of infection.

Cataract surgery out reach of this nature is inevitable if we are to make any headway in clearing the cataract back log of over 500,000 individuals. Cataract blindness has continued to account for more than 50% of the total blind in Nigeria[1,2,3]. More than 100,000 Nigerians become blind annually from cataract adding to the existing backlog of 500,000 individuals[3]. This number is ever increasing since cataract is an age related progressive disorder[3].

It should be noted that even though the patients in this study all had cataract surgeries without intraocular lenses, we have since early this year commenced cataract surgery with intraocular lenses. So far, results have been encouraging.

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Correlates of emergency response interval and mortality from severe anaemia in childhood

***S. K. Ernest, N. E. Anunobi and A. Adeniyi**
Department of Paediatrics and Child Health,
University of Ilorin and University of Ilorin Teaching Hospital, Ilorin Nigeria.

Summary

A retrospective study to determine the influence of blood transfusion emergency response interval on Mortality from childhood severe anaemia was carried out. Admission records of all children with severe anaemia over a 5-year period was reviewed. Those who either died before transfusion or got discharged against medical advice were excluded. A total of 5790 patients were admitted during the 5 year period. Ten percent (10%) had severe anaemia. Malaria, the leading cause of anaemia in this series, was found in 80% of the patients. Twenty patients (3.3%) died before transfusion while 50 discharged from the hospital against medical advice. There was male preponderance. Ages 2-5 years were the peak age group for severe anaemia. No patient had haematocrit less than 5% but 20 (4.2%) had heaematocrit above 20%. The hospital stay for majority (74.8%) of the patients was 72 hours or less. Mortality (Case fatality) increases with increase in transfusion emergency response interval within 24 hours. Based on the transfusion emergency response interval versus mortality curve, a mortality risk assessment scores were derived for use in clinical practice to determine the risk of dying from the disease. We recommend that national or hospital policy on blood transfusion be enunciated to ensure that all patient with severe anaemia get transfused within 2 hours of diagnosis.

Keywords: ***Transfusion Emergency response interval, Mortality, Mortality risk assessment scores.***

Résumé

Une étude rétrospective pour examiner l'influence de la réaction par intervalles de la transfusion du sang d'urgence sur la mortalité à travers l'anemie infantile grave, a été effectuée.
Enregistrement d'admission de tous les enfants souffrant de l'anémie grave au cours d'une période de 5 ans a été passé en revue, à l'exception de ceux qui étaient morts soit avant la transfusion soit ceux qui étaient sorti de l'hôpital san permission. Un nombre total de 5,790 malades ont été hospitalisés au cours de cette période de cinq ans. Dix pourcent (10%) avaient l'anémie grave. Le paludisme, qui prend la tête dans la cause de l'anémie en cette série était noté chez des malades, vingt malades soit (3,3%) étaient morts avant la transfusion tandis que 50 avaient quitté l'hôpital sans la consultation médicale.
On avait remarqué la prépondérance de mâle. Le groupe de la classe 2 à 5 ans était l'âge maximum pour l'attaque de l'anémie grave. Aucun malade avait l'hématocrit, moins de 5% mais 20 soit (4,2%) avaient l'hématocrit plus de 20%. La durée de l'hospitalisation pour le plus grand nombre des malades 74,8% était 72 heures ou moins.
Le mortalité (cas montel) s'accroit avec l'accrossement de la transfusion d'urgence réaction par intervalles en moins de 24 heures. A travers la transfusion d'urgence reaction par intervalle par rapport à la coube de la mortalité, des scores de la répartition des risques de morts (mortality risk assessment scores) étaient tirés à l'usage des clientèle cliniques pour déterminer le risque des morts à travers la maladie. Nous proposons que la politique nationale ou de l'hôpital sur la transfusion du sang soit précise et claire pour assurer que tous les malades avec l'anémie grave recoivent la transfusion en moins de 2 heures de la diagnose.

Introduction

On several occasions children are rushed into hospitals because of severe anaemia from various causes. The causes and rate of developemnt of anaemia determine the type of treatment to be given. However replacement of red cell is indicated once the anaemia becomes severe enough to compromise tissue oxygen delivery[1,2].

Packed cel volume per se is a good indicator of anaemia but not a true reflection of tissue oxygen delivery because of compensatory increase in cardiac output. In comparison, clinical evidences of decompensating cardiac function are more indicative of disease severity and potential death if anaemia is not promptly corrected. Consequently the rapidity with which blood can be made available to these children is a potential determinant of survival[3,4].

The purpose of this retrospective study is to evaluate the influence of the emergency response interval on the mortality from severe anaemia among children and identify the factors responsible for delay in emergency response. We have observed severely anaemic children die in the hospital while waiting for blood transfusion due to delay in emergency response. We have observed severely anaemic children die in the hospital while waiting for blood transfusion due to delay in the availability of appropriate blood or its products.

In the tropics and sub-tropical regions of the world emergency care responsiveness is slow with an attendant increased emergency response interval that may increase mortality. Hence this present study was carried out to locate the present status of our emergency response to severely anaemic children and the likelihood of dying from severe anaemia.

Method

This retrospective study involved a review of the admission records of the patients with severe anaemia cared for in the Emergency Paediatrics Unit (EPU) of the University of Ilorin Teaching Hospital (UITH), Ilorin, Nigeria over a 5 year period January 1994 to 1998. Information extracted for this study included: Age, sex, date of admission, time of diagnosis, time of commencement of blood transfusion, the causes of anaemia and the treatment outcome. The 20 patients who died before transfusion and the 50 patients who were discharged against medical advice were excluded. Data was entered into IBM compatible personal computer. Analysis was done on Epi Info version 6.02 and emergency response interval versus mortality curve was designed using Microsoft Excel[5].

Result

A total of 5790 patient were admitted into the EPU over the 5 year period. Six hundred (600) had severe anaemia due to various conditions. Incidence of severe anaemia was 10.4%. Fifty patients (50, 8.3%) were discharged against medical advise (DAMA) and twenty (20, 3.3%) died before transfusion while the remaining five hundred and thirty (530, 88.4%) received blood transfusion. There was male preponderance. Male 335 (53%). Female 265 (45%) with a male to female ratio of 1:0.7. Forty patients died among the 530 patients in consideration due to anaemic heart failure and hypoxic encephalopathy. Case fatality was 7.6%.

Among the 120 patients that had blood transfusion within 2

*Correspondence

hours of diagnosis 1 (0.8%) died and 119 (99.2%) survived. One hundred and ninety eight (198) were transfused within 3-6 hours of diagnosis, 4 (2%) died and 194 (98%) survived. Ninety patients were transfused within 7-10 hours of diagnosis 7(7.8%) died and 83 (92.2%) survived. Also, of the 54 patients that were transfused within 11-15 hours of diagnosis 9 (116.7%) died and 45 (83.3%) were alive. Of the 38 patients that were transfused within 16-20 hours of diagnosis 10 (26.3%) died and 28 (73.7%) survived. Among the 17 patients that were transfused within 21-24 hours of diagnosis 6(35.2%) died and 11 (64.8%) were alive while of the remaining 13 patients that were transfused after 24 hours of diagnosis 3 (23.1%) died and 10 (76.9%) survived. (Table 1).

Table 1 Emergency response interval and mortality from severe anaemia

Interval (Hours)	Number	Outcome Number alive	%	Death	%
1-2	120	119	99.2	1	0.8
3-6	198	194	98	4	2.0
7-10	90	83	92.2	7	7.8
11-15	54	45	83,3	9	16.7
16-20	38	28	73.7	10	26.3
21-24	17	11	64.8	6	35.2
>24	13	10	76.9	3	23.1
Total	530	490		40	

**20 Patients died before transfusion was commenced*

Figure 1 emergency response interval versus mortality curve shows increase mortality with increase interval. The mortality at different reaction time were compared for significant differences, at <6 hours versus >6 to 10 hours Chi squared was 9.04, P-value was 0.003 and odds ratio was 5.1. At >6-10 hours versus >10 hour – 24 hour Chi squared was 6.17, P-value was 0.013 and odds ratio was 2.95. At <10 hour versus >10-24 hours Chi squared was 40.69, P-value was 0.000 and odds ratio was 7.8 and <24 hours versus >24 hours Chi squared was 3.47, P-value was 0.09 and odds ratio was 0.31 (Table 2).

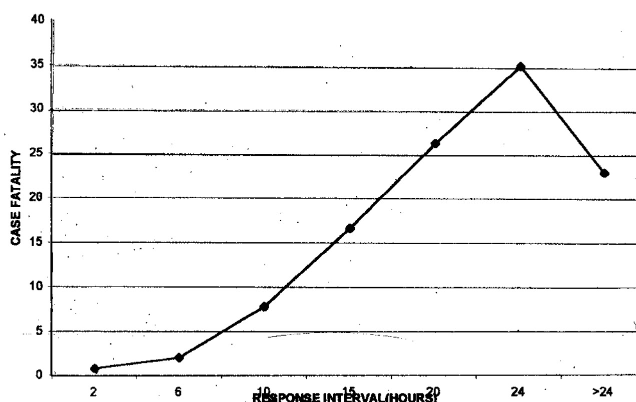

Fig. 1 ***Correlates of transfusion emergency response interval and mortality from severe anaemia in childhood (response interval versus mortality curve)***

Table 2 Comparism of mortality at different emergency response interval

Interval(Hours) Difference	Chi-Square	P-value	Odds Ratio	
<6 versus >6-10	9.04	0.003	5.1	Significant
>6-10 versus >10-24	6.17	0.013	2.95	Significant
<10 versus >10-24	40.69	0.000	7.8	Significant
<24 versus >24	3.47	0.09	0.31	Not significant

P-value <0.05 is significant

The distribution of the patients by age was as on Table 3. Infants were 170 (28.3%), age group 2-5 years were 345 (57.5%) age group 6-12 years were 75 (12.5%), while age group 13-15 years were 10 (1.7%).

Table 3 Distribution of severe anaemic patients

Age (Years)	Number	%
<1	170	28.3
2-5	345	57.5
6-12	75	12.5
13-15	10	1.7
Total	600	100

The distribution of the patients by haematocrit (Ht) were as follows (Table 4). No patient had haematocrit <5%, 140 (23.3%) patients had haematocrits between 6-10%, 235 (39.2%) had 11-15% haematocrit, 200 (33.3%) had haematocrit of 16-20%) while 25 (4.2%) had haematocrit greater than 20%.

Table 4 Distribution of severe anaemic patients by haematocrit

Haematocrit (%)	Number	%
<5	0	0
6-10	140	23.3
11-15	235	39.2
16-20	200	33.3
>20	25	4.2
Total	600	100

The causes of anaemia were as follows; malaria in 480 (80%) patients, sickle cell anaemia in 150 (25%) patients, protein calory malnutrition in 120 (20%) patients, septicaemia in 100 (16.7%) patients, bronchopneumonia in 96 (16%) patients, glucose-6-phosphate dehydrogenase deficiency in 22 (3.6%) patients, autoimmune haemolytic anaemia in 12(2%) patients, leukemia in 8 (1.3%) patients and disseminated intravascular coagulation due to snake bite poisoning in 3 (0.5%) patients (Table 5).

Table 5 Causes of severe anaemia among 600 children

Causes	*Number	%
Malaria	480	80
Sickle cell anaemia	150	25
Protein Energy Malnutrition	120	20
Septicaemia	100	16.7
Bronchopneumonia	96	16
G-6-P-D deficiency	22	3.6
Autoimmune haemolytic anaemia	12	2
Leukemia	8	1.3
DIC due too snake bite poisoning**	3	0.5

**Some patients had multiple diagnosis*
***DIC = Disseminated intravascular coagulopathy*

Table 6 Duration of hospital stay

Days	Number	%
1-3	449	74.8
4-7	90	15.0
8-14	7	1.2
>14	3	0.5
Total	550*	100

**Excluding those that discharge against medical advise*

Table 7 Mortality risk assessment score (M-RAS) in severe childhood anaemia

Response interval Hours	Risk of death (Mortality risk)	Scores
<2	RI-Almost NIL	1
2-6	R2-Low	2
6-10	R3-Moderate	3
10 – 24	R4-High	4
>24	R5-Very High	5

The duration of hospital stay was as presented on Table VI, 440 (74.8%) patients spent between 1 to 3 days, 90 (15%) patients spent 4 to 7 days, 7 (1.2%) patients spent 1 to 2 weeks while 3 (0.5%) spent more than 2 weeks in the hospital.

Discussion

Emergency response interval takes into consideration the period between diagnosis and the time of onset of blood transfusion which usually may not be truly representative of the time patient expended in the hospital. Much time may be spent on consultation bureaucracies like retrieving record folder, making payments and waiting to take turn to see the doctor all of which could not be represented in the records. However, as noted by Bamigboye et al[6], the time spent in the hospital may be lengthened or shortened by many factors.

The prevalence of severe anaemia of 10.5% is comparable experiences from other local centers in Nigeria and to that of 7.8% reported from Vermont initially but much higher than the 3.6% reported later from the same center[7]. This variation can be attributable to the high prevalence of sickle cell anaemia, malnutrition, and malaria and infestations in our environment. There was increase case fatality (CF) with increase emergency response interval. This correlation continues until 24 hours reaction time, after which CF falls. This is consistent with logical thinking and previous findings[2,4].

Our study showed an emergency response interval versus mortality curve with significant prognostic outlook that is suggestive of a graded risk of death at different intervals. We therefore suggest a mortality risk assessment score (M-RAS). Scores were as follows; 1 for almost no risk of death, 2 for low risk, 3 for moderate risk, 4 for high risk and 5 for very high risk, (Table 7).
To minimise fatality, transfusion must be given within 3 hours of diagnosis. Within 6 hours emergency response interval risk of dying is low and this steadily increases as emergency response interval increases. The M-RAS can therefore be used to communicate death risk on individual patient to the minds of health planners and the physicians and the urgent need to reduce reaction time and hence mortality, through transfusion policy and improved quality of standard care.

However, the observed decline in the CF among the patient whose transfusion inadvertently got delayed beyond 24 hour emergency response interval showed no statistically significant difference from the mortality within 24 hours. The decline may be related to the therapy from better medical opinion which was not available for those who died within 24 hours emergency response interval. Such therapy included administration of frusemide to reduce pre-load on the heart. The quality of care usually improved steadily over 72 hours of admission due to opinions from case reviews by higher cadre physicians. However, no standard of care should transfuse any patient later than 24 hours of diagnosis.

Most of the patients were discharged within 72 hours of admission. This is understandable because the leading cause of severe anaemia was malaria which is treatable within that period; once the child has been transfused they may be discharged to complete anti-malaria therapy at home if not completed yet. The reason why no one came with heamatocrits less than 5%, may be because they died at home. It could then be concluded that such haematocrit is not compatible with life in our environment. At that low haematocrit the level of hypoxia could result not only into cardiac malfunctioning but also encephalopathy and adrenopathy and eventual death[8].
The age distribution of anaemia Table 2 shows that age group 2-5 years were most vulnerable. Infants were likely to have some protection from their mother and less predisposed to having malaria or malnutrition because most got exclusively breast fed. At the age group 2-5 years when nutrition is no longer adequate and malaria immunity has remarkably waned off form the circulation then severe malaria and bacterial infection are most likely to occur at that time[9]. The leading cause of anaemia and the spectrum of diseases responsible for severe anaemia were comparable to previously reported in our environment[9].

We suggest that more aggression be shown to reduce the Blood Transfusion emergency response interval to reduce case fatality from severe anaemia most especially in the vulnerable ages. A hospital policy that will enable transfusion to be undertaken within 2 hours of diagnosis is desirable. Also further research should be carried out to address issues that may be responsible for the delay in transfusion that may cause unnecessarily prolonged emergency response interval.

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A comparison of the efficacy of Alfentanil and Remifentanil analgesic infusions for spinal surgery

A.F. Faponle* and J.W.H. Watt

**Department of Anaesthesia, Obafemi Awolowo University, Ile-Ife, Nigeria. and Regional Spinal Injuries Unit, Southport, Merseyside, England.*

Summary

The use of alfentanil infusion was compared with that of remifentanil infusion for spinal cord surgery in a retrospective review. The aim was to compare the outcome when methohexitone was used as the only hypnotic agent in the two groups. Over a 3-year period, 5 patients (group 1) had Alfentanil infusion and 11 patients (group 2) had remifentanil *infusion* for analgesia during spinal cord surgery.

Results showed that remifentanil lead to a faster onset of recorvery than alfentanil. It also provided better haemodynamic stability than alfentanil without excesive hypotension (p>0.05). Our experience here indicated that remifentanil provided better flexibility of use with less tachycardia and respiratory depression than alfentanil for spinal surgery.

Keywords: ***Total Intravenous Anaesthesia, Spinal surgery.***

On avait comparé l'usage de l'infusion alfentanile par rapport à l'infusion remifentanile à l'égard de la chirurgie de la moe'lle épinière à travers un examen rétrospective. Le but était de comparer le résultat quand on a utilisé la méthohexitone comme le seul agent hypnotique dans les deux groupe. Au cours d'une période de 3 ans, 5 malades (groupe 1) avaient l'infusion alfentanile et 11 malades (groupe 2) avaient l'infusion remifentanile pour l'analgésie durant l'opération de la moelle épinière.
Des études montrent que l'efficacité de la remifentanile menant à la guérison est reconnue plus que l'effet d'alfentanile. Egalement, elle assure mieux la stabilité hémodynamique plus que l'alfentanile sans l'hypertension excessive (P>0,05).
D'après notre expérience, on peut conclure que la remifentanile assure mieux la souplesse de la dose avec la diminution dans la tachécardiaque et la crise dans l'appareil respiratoire plus que l'alfentanile à l'égarde de l'opération vertébrale.

Introduction

Opioid drugs are sometimes used as part of an induction sequence to provide a smooth onset of anaesthesia and to obtund the haemodynamic responses to laryngoscopy and intubation. Opiods and hypnotic agents can be used together in a Total intravenous anaesthetic regime, the drugs interacting to potentiate one another. The use of a methohexitone-based TIVA regime during spinal column surgery had been reported earlier to provide the greatest potential for non-invasive monitoring of spinal motor tract integrity[1].

Alfentanil was the opioid being used in this centre in combination with various hypnotics such as etomidate. Ketamine and propofol. Methohexitone and alfentanil provided a TIVA based regime that allowed for intraoperative spinal cord monitoring and good wake up times. However, the anaesthetic was associated with a great degree of intraoperative haemodynamic instability. Remifentanil, a new opioid with a pharmacodynamic profile which promises greater flexibility in usage was introduced to correct this. Maintenance of haemodynamic instability in spinal cord surgery is important in order not to jeopadise spinal cord perfusion.

Alfentanil is a synthetic opioid tetrazole derivative of fentanyl, about one-fourth as potent and less lipid soluble, than fentanyl, with a small volume of distribution (Vd=0.1-1.01 per kg) and a higher percentage of protein binding (89-92%)[4] One of the clinical applciations of alfentanil is by continuous infusion. It has a rapid onset of action, short elimination half-life and provides a prompt recovery with temporary residual analgesia. Side-effects include respiratory depression, constriction of the pupils, depression of the cough reflex and suppression of excitatory activity and nausea and vomiting by stimulating the chemoreceptor trigger zone for emesis in the medullar[4].

Remifentanil is a new congener of the fentanyl family of opiods that was approved for use as a supplement to general anaesthesia in the USA in 1996[6]. Pharmacodynamically, in most regards, remifentanil is indistinguishable from the other fentanyl congeners, producing analgesia respiratory depression and other effects that are typical of the fentanyl relatives. It is unique because of its short-acting profile. Its ester structure renders it susceptible to widespread ester hydrolysis, resulting in very rapid metabolism. It thus constitutes the first true 'ultrashort-acting' opioid. Its elimination and context-sensitive half-time (t ½ context) are significantly shorter compared with alfentanil[5]. Because of the shorter and more predictable recovery profile from anaesthetic effects, we have studied any possible difference in the intraoperative haemodynamic and post operative recovery of spinal surgical patients after total IV anaesthesia (TIVA) with alfentanil-methohexitone or remifentanil-methohexitone.

This is a restrospective study comparing the outcome of the two drugs using times to awakening and tracheal extubation as pharmacodynamic end points.

Patients and methods

The anaesthetic notes of patients who had spinal surgery over a three year period were reviewed. All such patients had a special anaesthetic technique which allowed for intra operative spinal cord monitoring using the transcranial magnetic motor evoked potential (TcMMEP). Twenty one patients were identified. Ten of these patients were given alfentanil infusion while eleven had remifentanil infusion. However, five patients of the alfentanil group also had ketamine administered. These five were exluded to reduce the confounding effect of the hemodynamic effects of ketamine. All patients had methohexitone as the hypnotic agent.

In the alfentanil group, (group 1), three of the patients had thoracolumbar spine surgery while two patients had cervical spine surgery. In the remifentanil group (group 2), nine patients had thoracolumbar spine surgery while two had cervical spine surgery. Neorologically, no patient had a complete spinal cord lesion. They were either neurologically incomplete lesions or they had no neurological deficit.

The anaesthetic technique was standardized. Patients were premedicated with either promethazine or morphine deliberately avoiding benzodiazepines. On patients arrival in the induction room, vital sings were usually recorded using the Hewlett Packard 78 352A cardiac monitor. This recorded the pulse rate, arterial oxygen saturation electrocardiogram, the fractional inspired oxygen ($F1O_2$), end-tidal CO_2 the percentage inhaled volatile agent and blood pressure. A radial artery cannular was inserted in all cases for invasive blood pressure reading. Anaesthesia was induced with methohexitone 2mg/kg/min for hypnosis. This was followed

*Correspondence

by 100mg/kg/min for 30 minutes. Depending on the cardiovascular response, the dose was decreased to 75-50mcg/kg/min. In group 1, analgesia was provided by a bolus dose of alfentanil 50mcg/kg/min followed by 5mcg/kg/min for 15 min and 1 mcg/kg/min thereafter. In group 2 analgesia was provided by a bolus dose of remifentanil 1 mcg/kg followed by an infusion of 0.5mcg/kg/min. The drugs were administered using computer controlled infusion pumps that rapidly attained, and then maintained, constant drug blood concentrations. If the patient showed signs of inadequate anaesthesia (autonomic or somatic response) target concentration would also easily be increased using the infusion pump. Volatile agents were not used during the anaesthetic. The concentration of nitrous oxide used was such that permitted transcranial magnetic motor evoked protentials (TcMMEP) monitoring, usually less than 25%. The TcMMEP monitor was applied after induction of anaesthesia in all cases.

A neuromuscular blocking agent was used in most instances at induction of anaesthesia for initial airway control but before recording the TcMMEP. In patients having surgery of the lumbar spine, relaxants were also used during patient positioning, muscle stripping or when diathermy was used continuously, to prevent muscle contractions during these periods. Ventilation was controlled initially until recovery of neuromuscular function. Subsequent recovery of neuromuscular function was confirmed by using a conveniently located peripheral motor nerve with a nerve stimulator. The adequacy of the TIVA-based anaesthesia was assessed in relation to cardiovascular stability with the aid of invasive arterial pressure monitoring and the absence of reflex body movements in response to surgical stimuli. Signs of cardiovascular instability were defined as a mean arterial pressure (MAP) above 100mmHg or heart rates above 90 beats per minute in the absence of hypovolemia and autonomic signs such as sweating flushing and somatic responses such as swallowing, movement or coughing.

Approximately ten minutes before the end of survery in each gorup, methohexitone infusion was discontinued. In group 1, alfentanil was also discontinued at the same time. In group 2, remifentanil infusion was discontinued just before turning the patient supine. The neurologically intact patients on remifentanil were given intravenous morphine 2.5mg before discontinuing the remifentanil infusion. This was subsequently repeated at 5min intervals as appropriate to a maximum of 10mg.

All patients who were neurologically intact and hence could use the patient-controlled analgesia pump (PCA), had PCA morphine for post-operative analgesia. Others had intravenous morphine infusions. All the patients were given 100% oxygen following termination of infusion in theatre. They were then observed during recovery in order to judge the appropriate time for tracheal extubation, depending on adequacy of respiration (a ventilatory frequency of greater than 10 per min) and conscious level. An allowance was made for a drop in blood levels of infused agents to occur and for signs of recovery of conscious level before doxapram was given if respiration remained markedly depressed. Naloxone was only used if respiration remained markedly depressed despite doxapram. The time to tracheal extubation from cessation of infusion and transfer to post anaesthetic care unit was also noted. Doxapram or naloxone was administered to aid resumption of spontaneous respiration in some instances.

On arrival in the PACU, all patients were observed for at least one hour. The ventilatory frequency, oxygen saturation, pain and level of sedation were routinely monitored. All patients received 40% oxygen by face mask. Pain on movement was assessed using a four point scale of no pain, mild, moderate and severe pain. Patients were discharged to the Spinal Intensive Care Unit or high dependency unit following adequate recovery.
Results were expressed as mean values ±SD.

Appropriate statistical tests (t-test and percentages) were used to compare the time to tracheal extubation and the haemodynamic responses in the two groups. The limits of significance were set at $P<0.05$.

Results

Five patients had alfentanil (Group 1) as the intraoperative analgesic while eleven were given only remifentanil (Group 2). Group 1 patients were relatively younger but not to statistical significance. The groups had a similar weight distribution (Table 1)

Table 1 Demographic date

	Group 1 (n=5)	Group 2 (n=11)
Age (yrs)	37±18.6(19-54)	38±20.9(19-82
Sex	2.3	10.1
Weight(kg)	63±8.4	68.3±7.1

Note: Values are mean ±SD or ( ) range
There were no statistically significant differences

Though the duration of anaesthesia for each group was similar. Group 1 patients required a higher dose of methohexitone to keep asleep. (Table 2) Group 2 patients took a longer time to wake up despite the lower dose of methohexitone. This was not found to be statistically significant.

Table 2 Duration of Anaesthesia and total drug dose

	Group 1	Group 2
Duration of anaesthesia (min)	209(140-290)	215(130-345)
Methohexitone administration (mcg/kg/min)	5.62(0.79)	6.15(2.66)
Alfentanil administration (mcg/kg/min)	0.11(0.04)	-
Remifentanil administration (Mcg/kg/min	-	0.08(0.04)

Note: values are mean plus standard deviation or ( ) range.

The mean duration to tracheal extubation as shown in Table 3 was 22 ± 7.2 minutes in Groups 2 compared to 48 ± 28.4 minutes in Group 1 ($p>0.05$).

All patients in Group 1 had tachycardia as shown by a heart rate above 90 beats per minute. This was severe enough to require the use of labetalol in one instance. No patient had hypertension in this group.

Only 3 patients of the remifentanil group had a heart rate above 90 beats per minute. This was not high enough to require therapy. Blood pressure tended to be well maintained within a MAP of 100 mmHg. (Table 3) Respiratory depression, requiring the use of respiratory stimulants was present in all patients who had alfentanil (Table 3).

Table 3 Comparison of the efficacy of alfentanil and remifentanil in anaesthesia

	Alfentanil (Group 1)	Remifentanil (Group 2)
Tracheal extubation (min)	48±28.4	22±7.02
Haemodynamic response (HR>90)	100%	27%
Respiratory depression (Naloxone/doxapram used)	100%	18%

Values are mean ± SD or percentages of patients with response.
There was no statistically significant difference in tracheal extubation time.

Interpatient variations in times to tracheal extubation were smaller with Group 2 (Figure 1).

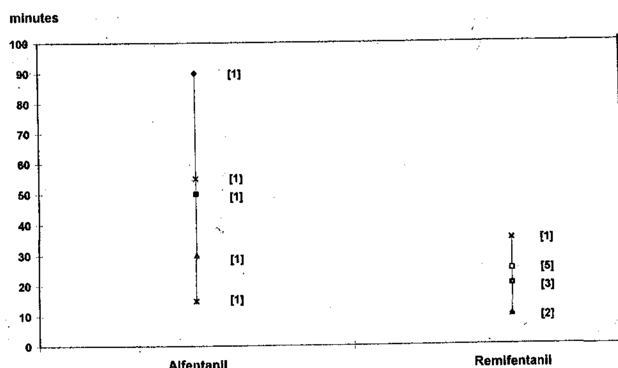

Fig. 1 ***Comparison of extubation times for patients on Alfentanil and Remifentanil***

Discussion

We have compared alfentanil and remifentanil use as TIVA for spinal surgery. We have been able to demonstrate that remifentanil leads to a faster onset of recovery than alfentanil. Remifentanil also provides better haemodynamic stability than alfentanil without excessive hypotension (P>0.05). This is especially important in patients with acute systemic insult to the spinal cord in whom prolonged hypotensive periods may further damage an already compromised spinal cord. Conversely. MAPs greater than 120mmHg may cause extensive haemorrhagic insult.

The total numebr of patients reviewed are small. This was due to the small number of patients presenting with spinal cord injury. The number would have been higher if we did not exclude five from the alfentanil group because they had ketamine in addition to alfentanil.

Remifentanil, a new member of the fentanyl family, is the first ultra-short acting opioid which can be rapidly titrated and individualized for various levels of surgical stimuli.

This study has confirmed other clinical studies comparing heart rate and systemic arterial pressure in groups of patients given remifentanil and alfentanil for analgesia in the balanced anesthetic technique that there were consistently fewer untoward responses under remifentanil in the doses used[1,2].

In a study comparing the use of the two drugs in neuroanaesthesia, however no significant benefit could be demonstrated in terms of recovery from anaesthesia[1].

Monitoring of both sensory and motor evoked potentials has become an established part of successful spinal cord surgery[3]. Both the stimulus pattern and the anaesthetic technique are critical to the recording of reproducible motor potentials. Responses recorded from the cerebral cortex are more anaesthetic sensitive (particularly to nitrous oxide and the halogenated agents). Using a total intravenous technique with methohexitone and opioids such as alfentanil or remifentanil and an intubating dose of muscle relaxants, stable intraoperative motor evoked potential monitoring is now possible.

The choice of methohexitone as the induction agent in this series was based on its success during the process of comparison of various induction agents for use during spinal cord surgery at this centre[3]. The dose selected was based on a few published data[3]. The decision on whether or not to step down the dose at any time during surgery was purely clinical, based on the patient's physiological responses. Compared with propofol and various inhalational agents which are powerful suppressants of both magnetic and electrical transcranial evoked potentials, methohexitone allows for non-invasive monitoring of spinal motor tract integrity. It also causes less hypotension than propofol.

The use of alfentanil was consistently associated with tachycardia. This was severe enough to require the use of labetalol in one instance. Hypertension was however not present in this series. Respiratory depression, requiring the use of respiratory stimulants to suppress, was present in all patients who had alfentanil. This may have been due to the cumulative effects of alfentanil, as the patients had lower doses of methohexitone.

Our experience here indicates that remifentanil provides better flexibility of use with less tachycardia and respiratory depression than alfentanil for spinal cord surgery. Times to awakening and tracheal extubation were more predictable in patients receiving remifentanil which may be important if the goal is to awaken and tracheally extubate the patient in the operating room.

Acknowledgement

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HIV-1 Infection in adults with haematological malignancies in Yaoundé, Cameroon

*D.N. Mbanya[1], E.M. Minkoulou[2] and L.N. Kaptue[1]
Department of Haematology and Diabetes Research Labs[2], University Teaching Hospital (CHU), Yaoundé, Cameroun

Summary

To determine the association between haematological malignancies and the HIV-1 in Yaoundé, Cameroon, adult patients (>16 years) followed up in the Haematology Clinics of two major hospitals were screened for the HIV between 1994 and 1999. There were nine haematological malignancies diagnosed among the 172 patients including Non Hodgkin's lymphomas (31.9%); chronic lymhocytic leukaemia (21.5%); chronic myelogeneous leukaemia (18.0%); acute myelogeneous leukaemia (9.9%); acute lymphoblastic leukaemia (7.6%) and multiple myeloma (7.0%). Burkitt's lymphoma, Hodgkin's disease and myelodysplastic syndrome were less frequently diagnosed. Forty-five of all cases (26.2%) had antibodies to the HIV-1 virus, predominantly in patients with Non-Hodgkin's lymphomas (p<0,001, OR=5.8, adjusted for age; CI=2.7 – 12.4). About 19.4% and 11.8% of cases with chronic and acute myelogenous leukaemia respectively were HIV-1 positive. Although B-lineage-derived malignancies are more often associated with the HIV infection, other malignant proliferations of the haematopoietic system may not be coincidental.

Key words: ***HIV, HIV-1, Haematological malignancies, Non-Hodgkin's lymphoma, Cameroon.***

Résumé

Pour determiner l'association entre les maladies hématologiques malignes et le VIH-1 à Yaoundé, Cameroun, les adultes âgés de plus de 16 ans dans deux services d'hématologie cliniques de Yaoundé ont subit les tests de depistage du VIH entre 1994 et 1994. Neuf different types de pathologies ont étaient diagnostiqués parmi 172 patients suivis. Les lymphomas malignes non-Hodgkiniens (LMNH) étaient retrouvé dans 31,9% des cas, la leucémie lymphocytaire chronique chez 21,5%; la leucémie myeloid chronique chez 18% et la forme aigue dans 9,9% des cas; la leucemie aigue lymphoblastique dans 7,6% des cas et le myélome multiple chez 7,0%. Par ailleurs le lymphome de Burkitt, la maladie d'Hodgkin et le syndrome myélodysplastiques n'etaient pas frequent. La prévalence du VIH-1 chez les 172 cas était de 26,2%. Les malades présentant le LMNH montraint une association significative avec la seropositivité VIH-1 (p<0.001, OR=5.8, adjusté pour l'age; IC=2.7 – 12.4). Environ 19,4% et 11,8% respectivement de cas de leucémie myeloid chronique et aigue etaient seropositives pour le VIH-1. Quoique l'infection à VIH est souvent associé aux pathologies malignes de la lignées B, la prolifération des autres lignées du système hémopoietiques ne sont pas forcement une co-incidence.

Introduction

In 1995, available data in Cameroon indicated that the most frequent cancers were hepatomas and skin cancers, constituting about 20% and 15% respectively of all diagnosed cancers (Unpublished data, Cameroon Anti-Cancer Society). Lymphomas represent 8% of cancers and leukaemias represent another 5%. The main haematological malignancies diagnosed include both myeloproliferative and lymphoproliferative disorders such as acute and chronic myelogeneous and lymphoid leukaemias respectively, lymphomas, paraproteinaemias and Kaposi's sarcomas (unplublished observations). Several reports suggest that there has been an increase in the incidence of cancers since the advent of HIV/AIDS [1,2]. Haematological malignancies have also been observed more frequently in these patients[3,4]. Furthermore, these opportunistic cancers may result from direct and indirect action of regulatory Tat proteins of the HIV-1 causing cytokine and immunological dysregulation, resulting in diverse cancers. They may also result from interactions with other oncogenic viruses[1].

The number of HIV-infected persons living in the world have escalated dramatically since the intial discovery in 1981, to a total of about 33 million by the end of December 1999[5]. Sub-Saharan Africa is most affected with about 66% of all cases living in this continent. Cameroon with its 14 million inhabitants has an estimated prevalence of about 7.2% (Sentinel Surveillance of the Ministry of Public Health, 1999). This prevalence tends to vary in different groups within the population. For example, a prevalence of 0.43% was described in blood donors by Zekeng and Kaptue[6] and among patients with tuberculosis, an HIV seroprevalence of about 23% has been described[7].

With the increase in the number of haematologists in Cameroon from one in the eighties to three in the nineties, more cases with haematological malignancies are being diagnosed during the last few years. However, there is a paucity of data in most African countries and no data has been published on the prevalence of the HIV among these patients in Cameroon. Thus, this was undertaken to determine the predominant haematological malignancies seen and the prevalence of HIV-1 infection among them in this setting.

Materials and methods

This hospital-based cross-sectional study was carried out between 1994-1999 in the haematology clinic of Hôpital Central and the University Teaching Hospital, Yaoundé, Cameroon (major teaching hospitals of the country) were included. Participants consisted of patients seen routinely or as referrals to the clinic who verbally consented.

Haematological malignancies were diagnosed by routine procedures including clinical examinations, full blood counts, bone marrow aspirates, trephine biopsies and lymph node histology among others. The HIV screening test was requested in adult patients (>16 years) diagnosed with haematological malignancies, as part of the routine investigations into the aetiology of the malignancies. After a standard pre-test counselling, a clotted sample was collected from each patient and sent to the Centre Pasteur laboratory (Reference Laboratory of the country) where screening and confirmation tests for HIV antibodies were performed using enzyme-linked immuno-sorbent assays (ELISA) and Western Blot techniques. A post-test counselling was done for all cases during which the results were explained to the patients.

The statistical package for Social Sciences (SPSS) version 7.5 for windows was used from statistical analysis. Where appropriate, Odds Ratio was calculated (95% Confidence Interval) to establish statistical association between the HIV and haematological malignancies. Values of p<0.05 were considered statistically significant.

Results

Of 195 cases, a total of 172 patients diagnosed with haematological malignancies were willing to be included in the study, a response rate of 88.2%. Their median age was 41 years (range 16 – 74 years). There were 94 males (54.7%) and 73 females (45.3%). The main haematological malignancies diagnosed among the study sample included Non Hodgkin's lymphomas (31.9%); chronic lymphocytic leukaemia (21.5%); chronic myelogenous leukaemia (18.0%); acute myelogeneous leukaemia (9.9%); acute

*Correspondence

lymphoblastic leukaemia (7.6%) and multiple myeloma (7.0%). Burkitt's lymphoma, Hodgkin's disease and a myelodysplastic syndrome were diagnosed respectively in 1.7%, 1.2% and 1.2% of cases. None of the 12 cases with multiple myeloma diagnosed in this study were HIV-positive and no cases of Kaposi's sarcoma were noted in the study sample. There were 45 HIV-positive cases, a prevalence of 26.2% in the study population. About 62% of all the HIV-positive cases had NHL, an association that showed statistical significance (OR=5.8, adjusted for age; CI=2.7 – 12.4; p<0.001) – Table 1.

Table 1 Frequency of haematological malignancies and HIV status

Type of malignancy	Frequency %	No. HIV Positive (%)	%Positive of all HIV-positives	Or (95%CI, adjusted for age)	P value
Non-Hodgkins lymphoma	55(31.9)	28(50.9)	62.2	5.8(2.7-12.4)	0.001
CLL	37(21.5)	5(14.3)	11.1	0.9(0.3-2.9)	0.85
CML	31(18.0)	6(19.3)	13.3	0.5(0.2-1.3)	0.16
AML	17(9.9)	2(11.8)	4.4	0.3(0.1-1.2)	0.08
ALL	13(7.6)	1(7.7)	2.2	0.1(0.02-1.0)	0.05
Multiple Myeloma	12(7.0)	9(0.0)	0	-	NS
Burkitt's Lymphoma	3(1.7)	1(33.3)	2.2	1.0(0.1-13.5)	0.97
Hodgkin's disease	2(1.2)	1(50.0)	2.2	1.9(0.1-32.9)	0.46
MDS	1(1.2)	1(50.0)	2.2	6.5(0.3-130.4)	0.22

CLL = chronic lymphocytic leukaemia, ALL = Acute lymphoblastic leukaemia,
CML = Chronic myelogeneous leukaemia
AML - Acute myeloid leukaemia CI = Confidence Interval
MDS = Myelodysplastic syndrome OR = Odds Ratio

The main histological types of NHL observed in association with the HIV infection were the diffuse lymphoblastic sub-type (observed in 64.3% of all the HIV-1 positive cases with the diagnosis of NHL) the follicular centroblastic types (noted in 17.9% cases) and the diffuse centroblastic sub-type in 14.3% cases.

Discussions

The Non-Hodgkin's lymphomas, the chronic lymphocytic and the myelogeneous leukaemias were the predominant haematological malignancies diagnosed in this series, but a significant prevalence of HIV-1 infection was only established in the NHL group, suggesting an association with lymphoid malignancies. As far back as 1975, Penn[8] recognised the association between abnormal cellular immunity and the increased incidence of NHL, implying that the profound defect of cell-mediated immunity in HIV-positive patients will allow a high prevalence of the disorder. Furthermore, in their analysis of patients with lymphoid malignancies in Nigeria, Analo et al[9] noted a high HIV-I prevalence among NHL.

The histological subtypes of NHL mainly associated with HIV-1 infection in our study were diffuse lymphoblastic and diffuse centroblastic (both high grade malignancies with poor prognosis) as well as follicular centroblastic type (low grade). Diffuse large cell tumours of either the intermediate or high-grade immunoblastic type was mostly observed in previous studies in HIV-positive patients[10,11]. These lymphomas may result from spontaneous genetic mutations or viral transformations. Perhaps racial or environmental factors would determine histological differences in different populations. Although there was no statistical association between the HIV-I antibodies detected in patients with myelogeneous leukaemias in this study, many cases were noted, and some authors have suggested that the monocytotropism of the HIV, the chronic cytokine-mediated activation of the monocytes and macrophages and the immunodeficiency may explain the occurrence of these disorders in HIV infection[3].

No significant association was established in this study between the HIV-1 and Burkitt's lymphoma, but this being a B-cell malignancy, has shown an increased incidence in AIDS patients, due to B-cell hyper activation in these patients[12]. The small numbers in this study would not establish such an association.

None of the cases of multiple myeloma were HIV-positve and no cases of Kaposi's sarcoma were recorded in this series. However, an increasing incidence of Kaposi' sarcoma has been associated with HIV infecton[13,14] and a close association has been established between Kaposi's sarcoma, multiple myeloma and the human herpes virus 8[15,16]. The role of the human herpes virus I in the pathogenesis of multiple myeloma is cumulating but this virus was not screened for in this study.

A high prevalence of the HIV infection occurs among patients with haematological malignancies in Cameroon. Non-hodgkin's lymphoma is a common opportunistic malignancy in these patients, predominantly the diffusé lymphoblastic sub-type. Although B-lineage-derived malignancies are more often associated with the HIV infection, other malignant proliferations of the haematopoietic system may not be coincidental.

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Sources of sexual information and its relevance to sexual behaviour in Nigeria

*J. E. N. Okonkwo[1], C. Obionu[2], R. Uwakwe+ and C. V. Okonkwo++

Dept of Obstetrics & Gynaecology, Department of Psychiatry+, Department of Mathematics/Computer Sciences, ++ Nnamdi Azikiwe University Teaching Hospital, P. M. B. 5025, Nnewi, Dept of Medicine[2], University of Nigeria Teaching Hospital, Enugu, Nigeria

Summary

A study was carried out to identify the various sources of sexual information by adolescents in Nigeria and their influence on the sexual behaviours of the subjects, using:
a) coitus prior to marriage
b) expectation with first coitus
c) freeness to discuss with spouse or anybody
as parameters. The study was carried between 1997 and 1998 using subjects randomly selected from three Nigerian communities, viz: Enugu, Benin and Nnewi.

Coitus before marriage was significantly higher in those who got their first ever information from peers than those who got it from other sources (P < 0.01). Fulfillment of expectation with first coitus was also significantly higher among those who were taught by parents, peers and teachers than those who sought their information on their own from books, magazines and films (p <0.05). However, in considering their ability to discuss with anybody, this was found to be significantly higher in those who sought information on their own than those who got their first information by personal contact with parents, peers and teachers (p <0.05). The latter was found to be more inhibited from discussing sexuality with their spouse or anybody than those who got their information from books/magazines and films.

Sex education of adolescents should, therefore, be provided in a cultural, community-based setting of which the guardian programme should be only one component. It may be counter-productive in Nigeria if the adolescents continue to learn about sexuality on their own from books, magazines and films.

Keywords: ***Sexual information, Cultural presentation, Behaviour***

Résumé

Une étude exécuté pour identifier les plusieurs sources de l'information sexuelle par les adolescents au Nigéria et leur influence sur leurs conduites sexuelles, en utilisant:
a. le rapport sexuel avant le mariage (pré-sexuel avant le mariage)
b. l'attente avec le premier rapport sexuel et
c. d'être libre de discuter avec.
Un époux ou n'importe personne comme les paramètres. L'étude était exécute entre 1997 et 1998 en utilisant hasardment l'adolescent selectionné de trois communauté Nigérians, à savoir, Enugu, Benin et Nnewi.

Le rapport sexuel avant le mariage était plus haut significativement dans ceux qui procurèrent leur tout premier information de leurs pairs plus que ceux la procurèrent des autres sources (p < 0.01). Accomplissement de l'attente avec le premier rapport sexuel était aussi plus haut significativement parmi ceux qui étaient appris par les parents, les pairs et les profeseurs plus que ceux qui ont cherché leur information de leur propre: lures, journaux et films (p<0.05). Cependant, en considérant leur abilité de discuter avec n'importe personne, ceci était trouvé d'être plus haut significativement dans ceux qui ont cherché l'information de leur propre plus que ceux qui procurérent leur première information par le contact personnel avec les parents, les pairs et les professeurs (P> 0.05). Le dernier était trouvé d' être plus inhibé d'en discutant la sexuelité avec leur époux ou n'importe personne plus que ceux qui procurèrent leur information de livres/journaux et films.

Education sexuelle d'adolescents pourrait, donc soit préveu à la culture, communauté auquel le programme de gardien pourrait être infficace au Nigéria si les adolescents continuent sexuelité de leur propre - livres, journaux et films.

Introduction

Sexuality is very close to the very core of human nature, yet so much mystery surrounds it. Various strong opinions, feelings, views, belief systems, values and attitudes about sex compound this subject. It is shrouded with privacy and wrapped in mystery in many cultures. In most Nigerian traditional communities children are not expected to name the sex organs. When taught about the body parts, sexual organs are usually excluded; these are "private parts" that must not to be called, touched or discussed. Those who show interest in sexuality are looked upon with utmost disdain as hopelessly promiscuous[1,2].

In the presence of this prevailing silence, teaching or learning about sex becomes difficult. As a result children grow into adults with a mass of assumptions, misconceptions, misrepresentations and distortions about sexuality, and now people present personal ideas as facts. Additionally people acquire their knowledge about sex in other most unscientific ways, accepting hook line and sinker the propagated beliefs of their societal cultures. In a natural curiosity to learn the unknown secrecy and taboo of sexuality, some turn to non-professional books, magazines, movies, television shows and such materials that are flooding the market[3-6]. In the process of experimenting, many fall victims to AIDS and unwanted pregnancy resulting in 61-90% of illegal abortions in Nigeria[7,8].

In the quest to curb this menace prevalent in this era, this study was undertaken to identify and target the major sources of sexual information so as to determine a thrust by which information and the popular cultures can be targeted and modified to decrease these sexually transmitted diseases and teenage pregnancy.

Material and methods

In summary, consenting volunteers who were selected by a systematic random sampling of three Nigerian communities were administered a validated 106-item self-rated sexual questionnaire designed for the study. Eight of the questions required simple "Yes" or "No" answers; 82 "True" or "False" and 16 questions required written explanations. There were 7 sections that were variously spread throughout the questionnaire so as to provide a convenient means of assessing the answers. The identities of the respondents were concealed as the questionnaires were retrieved after completion. The study group consisted of businessmen, civil servants, farmers, housewives and people in the healthcare profession (medical students, doctors and nurses) in three major medical schools in Nigeria; University of Nigeria Teaching hospital, Enugu; University of Benin Teaching Hospital, Benin-City and Nnamdi Azikiwe University Teaching Hospital, Nnewi. The influence of the sources of information on sexual behavior was examined using coitus prior to marriage, expectation with first coitus, freeness to discuss with spouse and anybody as parameters.

*Correspondence

Analysis was by x^2 test and comparison of averages and proportions between the various groups.

Results

A total of one hundred and thirteen individuals, 40(35.4%) males and 73(64.6%) females, aged 20 to 70 (mean 34.74) years

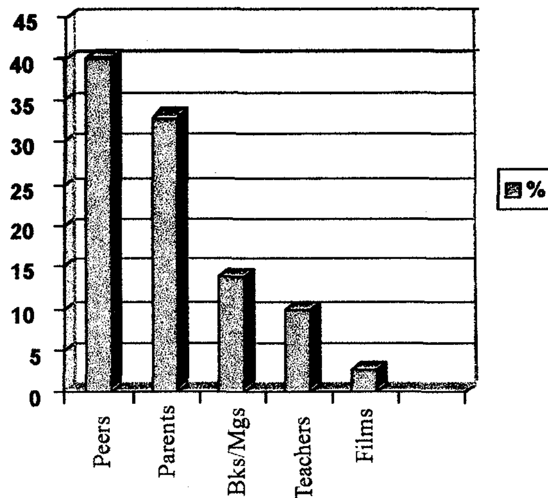

Fig. 1 ***Initial source of information***

responded to the questionnaire. All the respondents did not answer all the questions. Forty percent of the respondents had their first source of information on sexuality from peers; 33% from parents; 14% from books and magazines; 10% and 3% from teachers and films respectively (fig 1). Forty-nine percent of respondents obtained further source of information from peers,

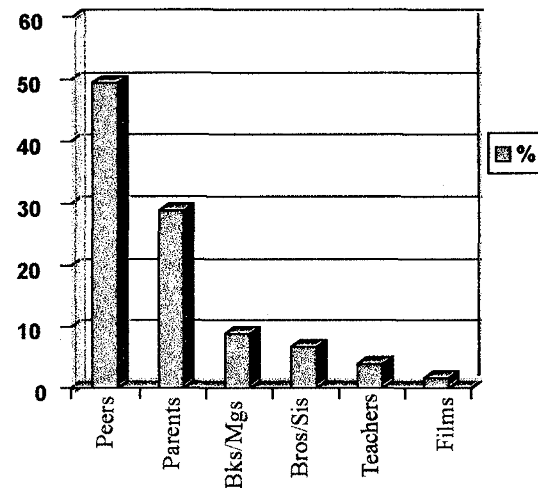

Fig. 2 ***Further sources of information***

29 from parents, 9% from books and magazines, 7% from other relatives, 4% from teachers and 2% from films (fig 2). In considering the influence of sources of information on coitus prior to marriage, these figures were subjected to x^2 test. It was observed that 73.7% who got their first ever information through peers had coitus before marriage as against 45% of those informed initially by their parents ($p<0.01$). The others who practised coitus before marriage were as follows: books/magazines 55.6% (5/9), teachers 87.5% (7/8), films 100% (3/3); but these were not statistically significant. Fifty percent each of those informed by their parents (5/10), books and magazines (9/18), and 73.7% (11/19) of people who got their first information from peers, 85.7% (6/7) from teachers and 66.6& (2/3) from films got their expectation with first coitus ($p>0.05$). However, it was statistically significant ($p>0.05$) when those who were taught by parents, peers and teachers were compared with those who sought the information on their own from books/magazines and films. About fifty-five (54.8%) percent who got their first information from personal contact with humans - parents, peers, teachers - were inhibited from discussing with their spouse as against 20% from books/magazines, 0% from films. In considering the ability to discuss with anybody, it was statistically significant ($p>0.05$) when those who sought information on their own - books/magazines, films - were compared with respondents who were informed by parents, peers and teachers.

Discussions

The greater number of the respondents (45) had their first ever information about sex through their peers. This is understandable as most parents would not provide any information about sex to their adolescents[9] and some may be illiterate or alliterate to consult printed material. Their peers probably derive their own information from other distorted sources so that they pass on the same wrong information to their friends. Thus early in life the groundwork for wrong concept about sex is solidly laid and reinforced by the socio-cultural inhibitions on sexuality[10]. This is illustrated in fig 2 where peers and mothers constituted 49 and 29% of further source of information respectively. The media (print and electronic) constituted another major source of both first and further information on sexuality. Sometimes these sources do not present factual information based on scientific studies; rather the personal opinions, views and value systems of the writers are fed to the public. Often times these sources have divergent and conflicting opinions that can be confusing, thus providing more distortions, misperceptions and assumptions about sexuality. Maters and Johnson[11] aptly put it thus "when information is made available to the public, its soundness is all too often highly questionable. What is presented as objective fact is generally coloured, and sometimes distorted by the informer's subjectivity. In the past this subjectivity was righteous and moralizing, essentially the view from the pulpit. In recent years, the subjectivity has been that of the counter cultural rebel, the super salesman of sex". This is illustrated where varied experiences were expected with first coitus. Even when the books contain useful information, the accurate comprehension of the readers may not be guaranteed so that certain issues may be misinterpreted, causing more anxiety to the readers. This has been printed out in the analysis of reaction to the AIDS communication and prevention programe of Bajos et al[12].

Nearly 7 out of every 10 respondents had their first coital experience before marriage irrespective of their sources of sexual information; however, 56% of those who had their first sexual information from their parents denied having any coitus before marriage. In most of the cases where parents were concerned, it was the mother who provided the information about sex. Yet women in the traditional view are not expected to talk about, learn or teach about sex openly.

In the light of the current and ongoing threat to health of young men and women of unplanned pregnancy, sexually transmitted diseases (including HIV/AIDS) reliable access to appropriate and sensitive information and services is of paramount importance. Even in the best setting attitudes towards these services vary between rural and urban areas[13] compounding this with the observation of Schadma and Koll that because of the differences in culture and behaviour, some preventive actions, which are effective in the western world, are of little value or even counter productive in developing countries[14]. One way of approaching this problem is to identify these sources of sexual information with a view to impact and correct some misconceptions through these sources, which in most cases are culturally based.

Finan identified the family as the first important source of learning about sexual issues[15]. Our finding shows that peer group forms the first important learning source followed by the family. Here comes the situation where peers fill the vacuum left by the parents.

School, after the family is the next crucial space for development of knowledge and ability in order to assure changes inbehaviour[16]. Since this is where peers interact closely, it is, therefore, convenient to provide correct information to these young men and women as was illustrated by Bob et al[17] in patients with pelvic inflammatory disease or in targeted population as advocated by Villela[18].

Our population and indeed most populations in the developing world are made up of various cultures - from those with plurality of cultures such as the Arabs who share very traditional conservative view of sexuality[19] to popular cultures which generate "transition-making behaviour" predisposing to high risk behaviour such as early sexual activity[20]. For any meaningful thrust that will modify sexual behaviour, therefore, there ought to be a cultural presentation and interpretation of data and facts in the context in which sexual behaviour takes place. This has been attempted in Uganda[21] thus broadening the field of sexuality from a health-oriented model to reach an anthropological perspective. This also agrees with the view of Rew L who used community-based intervention to pattern behaviour for young female Hispanics[22]. It is no surprise, therefore that those respondents who got their information from human sources - parents, peers, and teachers - were more inhibited from discussing with anybody as against those who got their information on their own from books/magazines and films. This can be interpreted as a cultural success in inhibiting promiscuity. To be effective, therefore, we must target the adolescents in a cultural, community based school and setting. Magalla et al[23], presented a program in Mwanza Tanzania whose aim was to protect adolescents girls against sexual exploitation. In his study, however, most guardians and other teachers were opposed to any sexual activity among girls, which limited their potential to encourage contraceptive use and prevention of STDs and HIV. In this context, the guardian program should be only one component of a much broader effort to address the issue of adolescent sexuality. This broader effort should attempt to seek out the sources of sexual information, modify or adapt it to each targeted cultural population so as to influence various modes of behaviour. It may be counterproductive, in Nigeria, if the adolescents are inundated with books, magazines and films only.

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Leprosy control in the post leprosaria abolition years in Nigeria: Reasons for default and irregular attendance at treatment centres

***M. C. Nwosu and S. N. N. Nwosu**
**Department of Medicine and Ophthalmology Unit, Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria.*

Summary

A questionnaire was administered to all patients with leprosy seen at the four leprosy clinics in Anambra State in a face to face interview. The questions covered, among other items, the clinic attendance behaviour and the single most important reason, monthly, for absenteeism in the preceding year. The total and individual frequencies of the reasons for absenteeism were determined for the various behavioural subgroups. The differences in frequencies and associations were analysed. Values of P<0.05 were considered as significant.

The results showed that 27 females and 26 males were interviewed. 39.6% of the patients were irregular attenders 7.5% were defaulters. Attendance at meetings (P<.001); work at home (P<0.01) fear/shame/indignation (P<0.05); no confidence in treatment (P<0.025) were significant reasons for absenteeism among irregular attenders inter-current illnesses as reasons for absenteeism did not differ significantly between regular and irregular attendees. The association between clinic attendance behaviour and lesion location (revealed Vs concealed) was not statistically significant ($X^2$0.3). The findings in this study indicate that in the post leprosaria abolition years, default and irregular clinic attendance by patients with leprosy are numerically large and may compound the problems of control programmes, and thus negate the realization of the global goal of intercepting leprosy transmission.

Keywords: *Leprosy control, Post leprosaria abolition, Nigeria, Irregular attendance, Default.*

Résumé

Une questionnaire a été distrubué aux malades souffrant de la lépre, venant de quatre cliniques de la lèpre, au Nigéria à travers une intrevue face-à-face avec ces malades. Les questions sont basées sur l'habitude de fréquenter la clinique et la question la plus importante, mensuelle, par rapport au absentéisme dans l'année précédente. On avait noté la fréquence des raisons relatives au absentéisme au niveau individuel ainsi que général à l'égard du behaviorisme des sous-groupes diverses. On avait analysé les différences entre les fréquences et ses données. On a noté les chiffres P<0,05 très remarquables.

Il en résulte que 27 femelles et 26 mâles ont été intrevués. 39,6% des malades avec fréquentations irrégulières, 7,5% retardataires. Assistance à des réunions (P<0.001); travaux domestiques (P<0,01) la peurla honte indignation (P<0,025) étaient des raisons valables pour l'absentéisme chez les malades avec fréquentations irrégulières, des maladies de temps en temps sont des raisons communes pour l'absentéisme chez les deux groups. L'haitude de la fréquentation de la clinique par rapport à la situation de la lésion (révélée par rapport à la cachée) n'a pas indiquée des donnés remarquables ($X^2$0,3).

On arrive à la conclusion que dans les années de la lutte contre la lépre, le taux de la défiance et de la fréquentation irrégulière à la clinique par les malades souffrant de la lèpre est élevé ce qui pourrait poser un problème énorme pour le programme de la lutte contre cette maladie, ce qui pourrait également empêcher l'objectif global pour déraciner l'attaque de la lèpre.

**Correspondence*

Introduction

Leprosy is a major health problem in Nigeria and the resurgence of the disease is a source of concern to health care providers[1]. Control measures are hinged on mutually complimenting efforts of governments and non-governmental organizations. It is however a common experience that in spite of enormous spending towards control and rehabilitation measures, many leprosy patients still shun these facilities. Since the formal abolition of the leprosaria, some patients have continued to reside around the immediate vicinity of the largely abandoned leprosaria, in a new patient to patient co-operation. Others stay back among their kinsmen in a concerted concealment effort[2].

Among the latter group, various factors are believed to contribute to the phenomenon of defaulters and irregular attenders. Age, sex and distance traveled to arrive at the clinics have been shown to affect clinic attendance rate[2]. In most cultures, for the patients with leprosy, the matter is opprobrious; for it has come to be associated with sin defilement punishment and group stima[2,3,4]. These up-heavals in the patients often manifest as behavioural disturbances. For instance, subconscious feeling of guilt may drive the patient towards accepting leprosy as divine punishment the mechanism of negation may produce an unwilling patient, while overcompensation may produce an aggressive and difficult patient[3].

While these factors no doubt contributed to the problem of irregular attenders and defaulters, other reasons might contribute to the absenteeism especially among patients who apparently were well adjusted to the illness. Giel and Van Zluejk[5] believed that unconvincing reception at hospital and frustration as regards the factual duration of treatment might have been responsible for the disappearance of about a quarter of their patients even before they had been properly examined. Other authors have found that the most important reasons for defaulting among leprosy patients were migration and no confidence in modern treatment, while for irregular attenders, disability, non remembrance of clinic days, social stigma and religious functions were contributory factors[3,6]. In Nigeria the dimensions of absenteeism in the treatment of patients with leprosy have not been well documented. The present report describes the magnitude of some of the reasons for defaulting and for irregular attendance among leprosy patients registered in a control programme in two local government areas (LGA) of Anambra State, Nigeria. It also discusses implications of the phenomenon as regards continuing transmission of the disease in the post leprosaria abolition years, as well as proffering some remedial measures.

Subjects, materials and methods

Four clinics located in Nnewi and Ihiala LGAs of Anambra State, Nigeria have been in use for the leprosy control programme since early 1950s. The leprosy control team consisting of a Rev. Sister/Nurse, a trained leprosy worker, an assistant and a driver make monthly rounds through the clinics dispensing drugs and supervising their ingestion and distributing gift items (clothing and foodstuffs). Each clinic was visited on a particular day of a specified week in the month through out the year. The visits were more frequent during the Christian festival periods of Easter (March/

April) and Christmas (December/January). The authors joined the control team in their monthly rounds through the leprosy clinics six months preceding the study.

At the inception of the study in January 1992 there were 115 registered patients in all four clinics and in the first half of the same year the mean monthly attendance at all 4 clinics was 72% of the registered number (25 of the patients were regular inmates living around the clinics). By 1997, the mean monthly attendance had dropped to 56%. The patients were all Ibos of the eastern part of Nigeria and shared similar cultural and social backgrounds. A questionnaire was administered to the patients in a face-to-face interview in Ibo language by the authors. Each interview lasted about 40 minutes and the questions covered included demographic information, means of transportation to the clinic; clinic attendance behaviours – (regular versus irregular) – and the single most important reason month by month for absenteeism in the previous one year; expectations from treatment; reasons for attending the clinic other than for treatment, opinion on improved services at the clinics. All patients attending the clinics on the days of the study were recruited into the study and interviewed. They were examined and classified (depending on presence or absence of lesions on exposed parts of the body) into revealed or non-revealed (i.e. concealed).

The total frequencies of the reasons for absenteeism as well as the individual frequencies of the particular reasons among the regular and irregular attenders and defaulters were analyzed to determine whether some particular reason(s) or groups of reasons were typical of any of the groups of leprosy patients. The differences in frequencies (regular and irregular attenders) were analyzed and the null hypothesis tested approximately by using X^2 statistics and fisher's exact test where appropriate. The P value was set at 0.05. Association between lesion types (revealed and non revealed and clinic attendance behaviour was tested by estimating the X^2 statistics.

Definitions

1. Regular attender: Patients with leprosy who have missed clinic appointments less than three times in the previous 1 year.
2. Irregular attenders: Patients with leprosy who have missed clinic appointments three or more times in the previous 1 year.
3. Defaulters: Irregular attenders who have missed clinic attendance and not receiving any anti-leprosy drug for the previous one-year or more.
4. Revealed: Patients with lesions on the exposed parts of the body.
5. Non-revealed (concealed): Patient without lesions on the exposed parts of the body.

Results

A total of 78 patients (43 females and 35 males) were seen. 25 of them were living within the immediate vicinity of the leprosy clinics and were of necessity regular attenders since those who fail to attend clinic were visited in their rooms by the control team. Thus 53 patients who live beyond the vicinity of the leprosy clinics were interviewed and were the subject of the resent report. They consisted of 27 females and 26 males. The mean age of the patients was 53.4 ± 13.7 years. Table 1 shows male and female distribution of the regular and irregular attenders.

Table 1 Sex distribution of the regular and irregular clinic attenders

	Irregular	Regular
Male	16	10
Female	9	18
Total	25	28

X2 = 4.23; P < 0.05

About 18.8% of the patients traveled to the clinic using their own private means of transportation (bicycles, motorcycles and motor vehicles). One of the patients who owned and operated a goods van for hired delivery services usually parked the van along the highway some half a kilometer away from the clinic and walked the rest of the distance through alternative bush paths to the clinic. The remaining 81.2% of the patients wether trekked to the clinic entirely (61%) or joined public transport vehicles for some part of the journey (20.2%).

Without exception all the patients were convinced that regular supply of drugs and provision of material gifts would enhance patients confidence in the control programme. All the patients resented incorporation of the leprosy clinic into the general hospital system, for reasons of delays before being attended to (31%), shame (61%) and indifferent attitude of personnel (27%). 39% of the patients would rather stay at home than attend a general hospital clinic for reasons of identification and shame. Two of the patients employed domiciliary drug delivery services from health superintendent on several occasions. Both patients preferred this mode of drug delivery but for the financial implications. All the patients commended the satisfactory conduct of the members of the control team.

7.5% of the patient were indifferent about expectations from the drug treatment of leprosy; and believed in religious cleansing. 51% were expecting a cure of their disease from drug treatment, while 41.5% believed that drug treatment could only work when combined with religious cleansing. None of the patients believed that traditional herbal remedy had curative abilities in leprosy treatment.

Table 2 Occupational (after diagnosis) Distribution of the regular and irregular clinic attenders

Occupation	Irregular	Regular
Farmers (Peasants)	15	15
Drivers	1	3
Artisans	3	4
School Pupils	1	-
Civil Servants	-	2
Petty Trading	2	3
Unemployed (Destitution)	3	6
Total	25	28

Table 2 shows the distribution of the regular and irregular attenders among the various occupational categories encountered in the present study. Table 3 shows the distribution of the reasons for absenteeism among the regular and irregular attenders. 3.8% of the patients interviewed were attending the clinic for the first time after over 12 months default. The commonest observed reasons for absence from clinic were work at home and attendance at meeting for regular attenders, and fear/shame/indignation, intercurrent illnesses, and work at home for the irregular attenders.

Table 3 Reasons for absence from clinic on appointment days

Reasons	Frequencies		
	Regular Attenders	Irregular Attenders	Fisher's Exact Probability
Attendance at meetings (Village/Church)	3	5	P<0.001
Death of a Close Relation	2	0	N.S
Intercurrent illness	1	65	P>0.05
Migration	0	1	NS
Fear/Shame/Indignation	1	77	P<0.05
Thought (Patient) curred	0	3	P<0.05
Forgotten clinic day	1	3	N.S
Work at home	4	11	P<0.01
No Confidence in treatment	0	4	P<0.025
Deformity	0	4	(IN)
No Reason	0	4	P<0.025

NS - Not significant *IN - Insufficient Numbers*
P - Probability

Table 4 shows the frequency of inter-current illness among the leprosy patients. There was no significant difference when inter-current illnesses were compared as reasons for absenteeism among the regular and irregular attenders.

Table 4 Frequency of intercurrent illnesses among the leprosy patients (in the previous one year)

Illness	Frequency (%)
Upper Respiratory infection	12
Gastroenteritis	10
Seizures	3
Fever	65
Foot ulcers	15
Trauma	20

(Many patient had multiple health problems)

Table 5 Frequencies of clinic attendance patterns of the patients with revealved vs concealed lesions

	Attendance Regular	Default/Irregular
Concealers	6	5
Revealers	29	13

$X^2C = 0.3$ *N.S.*

The relationship between lesions locations in the patients and clinic attendance patterns is shown in Table 5. There was no significant association between clinic attendance pattern and lesion location (revealed Vs concealed in the patients with leprosy (X^2c 0.3).

Discussion

61.5% of males and 35.3% of the females were irregular attendeers in this study. This finding re-echoes and earlier observation on the male factor in the prediction of default and irregular attenders in treatment.

A cross section of the predominant occupational groups in the study loctions was encountered in this study. An overwhelming proportion of the patients were peasant farmers (45.3%), belonging to the low socioeconomic group. Among this group, economic activities mainly serve to maintain subsistence living. Yet affliction by leprosy demands abdication of these activities to attend clinic on days that from time to time may coincide with major market days. Ekambaram found that from time to time may coincide with major market days. Ekambaram found that many of their patients being poor daily paid labourers could ill afford to spare even half a day to attend clinic. The finding of a significant association between work at home and irregular clinic attendance in the present study agrees with the above observation.

Participation in village and church activities were significantly associated with irregular clinic attendance among patients with leprosy. It is unlikely that their various communities have become more tolerant to the leprosy phenomenon. In some cases concealed lesions may encourage involvement in village activities. In others the various religious groups may be less hostile to such patients with revealed lesions.

Attendance at village meetings by such revealer patients in defiance of the stigma and ostracism that often prevail will hardly enhance the patients' status. Giel and van Luejk pointed out that there was no virtue in being a revealer and setting an enlightened example to other chronically disabled people; the only advantage in revealing the disease and wounds being in the extent to which it supported attempts at alms begging. In both situation of the revealers and concealers the frequency of such village and religious meeting and activities will determine to some extent the clinic attendance behaviour of the patients. There is the potential risk of converting regular attenders to irregular attenders in situation of very frequent meetings.

More flexible and more frequent clinic sessions and the provision of individual appointments with alternative appointment days may help to encourage regular attenders. Similarly patients who forget one clinic day may opt to attend the clinic on the alternative days.

Inter-current illnesses accounted for 37.6% of the reason absenteeism among irregular attenders. Although this proportion falls short of the 5% significance level, it presents a unique clinical problem. The environmental risks suffered by leprosy patients and the major causes of inter-current morbidity have not received adequate attention.

However, our observations showed that fevers (malaria, etc) trauma (from falls) and ulcerations were the commonest causes of inter-current morbidity among leprosy patients. Other studies have suggested that sexually transmitted diseases and human immuno-deficiency virus infection were rare among patients with leprosy[7,8].

A more detailed longitudinal study will be required to clearly identify the risks suffered by leprosy patients as regards other prevalent health problems in their communities. Nevertheless, incorporation of other elements of primary health care activity in leprosy clinic will help to encourage the patients to present their other health problems.

Death and illnesses among relatives of leprosy patients may pose additional hardship to these patients. In Nnewi and Ihiala communities, as in other parts of Nigeria, death and illnesses are communal concerns[2,9]. However the extent of community participation in the burial of the dead and care of the sick relation of the leprosy patients largely reflects the level of social stigma attached to the disease. A more comprehensive health care scheme for these patients and their dependants, allowing them access to treatment at subsidized cost may reduce the effect of this factor on irregular attendance at leprosy clinic.

Fear, shame, and indignation (related aspect of behaviour in the evolution of the patients reaction to his disease) were reason for irregular attendance in the present study in 44.5% of the times. In the contemporary Nigerian Ibo literature, leprosy is a much stigmatized illness[10]. In the ancient past in both occidental and oriental culture, it is not so much the medical witness as the social reactions that gave evidence of the presence of leprosy[3,11]. Skinsness et al[11]; had hypnotized that where the patterns of reasons (to a disease socially designated leprosy) were such that there was strong aversion towards the affected individual and as a group; those were evidences of the presence of leprosy, the lack of convincing medical evidence of the diseases not withstanding[4].

Leprosy compounds medical and social problems to a unique degree. For the society and individual the psychological change required is formidable in historical and literary rather than the medical sense[4]. These social reactions derive from the characteristic mutilation associated with progressive debilitation and the hitherto prevalent notion of incurability. Fortunately the most potent therapy for this social pathology of leprosy rests on recent and continuing advances in the leprosy treatment and surgical reconstruction. They break the cycle of transmission and render the condition subject to management and control. Nevertheless in this study absenteeism from treatment is significantly associated with fear, shame and indignation. In the individual patient these factors may lead to total resignation and indifference to control measures. In 2.3% of the instances of absenteeism no reasons were proffered while in one instance the patient had migrated to the northern part of the country in the bid to settle unidentified.

A rather curious observation in this study was the non-contribution of deformities and revealed lesions as reason for absenteeism among the regular and irregular attenders. Giel and van Lukj[5] similarly had found no correlation between disability and attendance rate in Ethiopians with leprosy. Hertroijis[3] however found that in Tanzanian patients with leprosy, the seriousness of the symptoms of the disease was inversely proportional to the prob-

ability of defaulting or irregular attendance.

While some of the deformed and disable patients we encountered in the present study may have been concerned with the importance of being cured others may have been primarily concerned with the material gifts that were distributed on each clinic day. Ultimately both groups being motivated by different factors may have other factors play the decisive role in determining their clinic attendance pattern.

In a disease condition where the duration of treatment may of necessity be prolonged, relapses after apparent quiescent period are apt to encourage the notion of incurability and at least may cast doubt on the effectiveness of current (modern) therapy[3]. Patients so affected may be less inclined to accord the necessary priority to clinic attendance. Yet the key to changing this perverse attitude is regular clinic attendance and strict drug compliance. In our study, no confidence in treatment was significantly associated with irregular clinic attendance. Patients' education organized by clinic staff in a continuing manner may provide ample information on the expectations from the treatment schedules.

In conclusion the problems of default and irregular attendance at clinic by leprosy patients are numerically large in this study. 39.6% of the patients were irregular attenders while 7.5% of them were defaulters. These findings indicate that even in the post leprosaria abolition years, default and irregular clinic attendance by patients with leprosy may compound the problems of control programmes and negate the realization of the global goal of breaking the cycle of transmission.

The introduction of more flexible and frequent clinic days; comprehensive health care scheme for patients relations and dependants; strict adherence to multi drug treatment scheme; effective and continuing patient education and reintroduction of social motivational factors as well as functional rehabilitation are proffered as some of the measures aimed at modifying patients' negative clinic attendance behaviour pattern.

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The use of simple diffusion tube samplers for the measurement of nitrogen dioxide in an operating room using nitrogen oxide as an anaesthetic (July – November 1999)

*E. E. Ukpebor and C. O. Imarengiaye
*Department of Chemistry and Department of Anaesthesiology
University of Benin, Benin City, Nigeria.

Summary

Estimates have been made of the amounts of nitrogen dioxide (NO_2) in the operating room of University of Benin Teaching Hospital (UBTH) where nitrous oxide (N_2O) a potential source of NO is used as an anaesthetic agent. Measurements were made using palmes diffusion tubes, a device which is capable of taking samples of NO_2 gas from the atmosphere through diffusion or permeation of this compound to the interior and subsequently trapping it by means of adsorption on reactive material, but which does not involve the active movement of the gas through the sampler.

Results obtained indicate a low concentration of NO_2 in the operating room with a minimum of 5.83µg/m³ and a maximum concentration of 6.22 µg/m³ NO_2. This result therefore suggests that the use of nitrous oxide in the operating room does not contribute significantly to the concentration of NO_2.

Key words: ***Operating room, Indoor environment, Outdoor environment, Nitrogen dioxide, Nitrous oxide.***

Résumé

On avait calculé la quantité d'azote dioxyde(NO_2) dans la salle d'opération du centre universitaire de l'enseignement hospitalier du Benin (UBTH) ou l'azote oxyde (N_2O) qui est la source la tente de NO était utilisée comme agent de l'anasthésique. On avait pris la mesure tout en utilisant les palmes tubes diffusion, une méthode à travers laquelle on pourrait prendre des échantillons de NO_2 gaz dans l'atmosphère à travers la diffusion ou la filtration de ce composé chimique dans l'intérieur et finalement le gas est pris à travers le processus de l'absorbtion sur un matériel réactif; toutefois, ceci ne provoque pas le movement actif du gaz à travers le modèle. Il en résulte que la concentration de NO_2 est en baisse dans la salle d'opération avec 5.83µg/m3 au minimum et la concentration de 6.22µg/m3 No_2 au maximun. Par suite de cette conclusion on peut dire que l'utilisation de nitreux oxyde dans la salle d'opération n'a pas assez d'influence sur la concentration de NO_2.

Introduction

Several pollutants from indoor sources affect human health. The spectrum of effects ranges from mild irritation of nasal and mucous membranes to irreversible toxic and carcinogenic effects. The evaluation of indoor exposure to air pollution in the workplace is therefore essential for realistic health effects assessment. An average adult breathes approximately 10 to 15m³ of air each day and has little choice whether or not to take the air in the vicinity.

Association between air pollution and the spread of disease has been established. Indoor air pollution is a definite factor in human and animal morbidity and mortality. Nitrous oxide has been used as an anaesthetic in medical practice in Nigeria for many years and although the administration of general anaesthetic in medical practices in countries such as the United States and United Kingdom has decreased over the last few years the use of nitrous oxide continues in relative analgesia or inhalation sedation.

Nitrous oxide which was hitherto regarded to be inert can no longer be seen from this perspective as it produces hazardous effects which have been reviewed recently[1]. Apart from its deleterious effect such as its reaction with metal complexes, in particular those involving cobalt, where it oxidises reduced vitamin B_{12} (cobalamin)[2], N_2O a greenhouse gas[3] is considered to be an important source of NO[4,5] which is of significance for the production and distribution of NO_2 in the atmosphere[6]. Nitrogen dioxide is an oxidant gas that at high concentrations causes lung injury. Toxicologic studies have shown that it reduces the efficacy of lung defense mechanisms against infection[7]. Some studies suggest that short-term exposure may exacerbate asthma[8]. Thus, the potential health effects of exposure to nitrogen dioxide indoors include increased respiratory tact infection from effects of defence mechanisms, increased respiratory tract symptoms and reduced lung function from direct inflammation, and deterioration of the health status of persons with chronic respiratory diseases, particularly asthma.

The Federal Environmental Protection Agency (FEPA) standard for NO_2 is presently 75-113 µg/m³ (daily average of hourly values range). The US National Ambient Air Quality Standard for NO_2 is presently 100µg/m³ annual average while the World Health Organization[9] has recommended a short-term standard of 320µg/m³ (1 hour average) not to be exceeded more than once per month. The continuing concern about health effects of exposure to NO_2 has prompted us to measure the level of NO_2 in the operating room of UBTH where N_2O a possible source of NO_2 is used as an anaesthetic agent.

Materials and method

The measurements were performed in the main operating room of the University of Benin Teaching Hospital and an outdoor site created by pharmacy department of the hospital to act as a control.

To measure NO_2 concentration, we used passive diffusion samplers developed and used by Palmes[10-13] and others[14-18]. These are small, 3 inches long, 3/8 in diameter acrylic tubes with stainless steel wire mesh coated in triethanolamine inserted and protected in one end. When open to the atmosphere, NO_2 molecules diffuse at a rate proportional to the ambient concentration. The tubes were prepared as described in the literature and mounted vertically at a height of approximately 2.0m above the ground surface on the supporting stands at each sampling point.

Two-week sampling period was used to allow a reasonable quantity of NO_2 to be adsorbed. The monitoring was done continuously from July to November 1999. The analytical finish was accomplished using a clean visible spectrophotometer at zero extinction to determine the extinction of the air samples at a wavelength of 540mm and NO_2 concentration was calculated from the amount adsorbed.

Results

Results available from the series of measurements carried out between July and November 1999 to evaluate the level of NO_2 in the operating room of the University of Benin Teaching Hospital are shown in Tables 1 – 5. A cursory look at the tables reveal that throughout the sampling duration, very low concentration of NO_2 were recorded with a minimum of 5.8µg/m³ and a maximum of

*Correspondence

Table 1 Concentration of NO_2 obtained for July

Site	Code	Start Date	Time	End Date	Time	Time hours	Conc in $\mu g/m^3$
Main Theatre	MT	2/7/99	9.10am	16/7/99	9.10am	336	6.20
(indoors)		16/7/99	9.10am	30/7/99	9.30am	336.20	6.09
Pharmacy Dept	PD	2/7/99	9.30am	16/7/99	9.30am	336	5.08
(Out door)		16/7/99	9.30am	30/7/99	9.35am	336.05	6.02

Table 2 Concentration of NO_2 obtained for August

Site	Code	Start Date	Time	End Date	Time	Time hours	Conc in $\mu g/m^3$
Main Theatre	MT	1/8/99	10.00am	15/8/99	10.15am	336.15	6.03
(indoors)		15/8/99	10.00am	29/8/99	10.15am	336	6.12
Pharmacy Dept	PD	1/8/99	10.15am	1/8/99	10.25am	336.10	5.82
(Out door)		15/8/99	10.25am	15/8/99	10.30am	336.05	6.02

Table 3 Concentration of NO_2 obtained for September

Site	Code	Start Date	Time	End Date	Time	Time hours	Conc in $\mu g/m^3$
Main Theatre	MT	2/9/99	9.30am	16/9/99	9.30am	336	5.83
(indoors)		16/9/99	9.30am	30/9/99	11.30am	338	6.22
Pharmacy Dept	PD	2/9/99	9.40am	16/9/99	9.40am	336	4.88
(Out door)		16/9/99	9.45am	30/9/99	9.50am	336.05	5.20

Table 4 Concentration of NO_2 obtained for October

Site	Code	Start Date	Time	End Date	Time	Time hours	Conc in $\mu g/m^3$
Main Theatre	MT	2/10/99	9.10am	16/10/99	9.10am	336	6.20
(indoors)		16/10/99	9.10am	30/10/99	9.10am	336	6.11
Pharmacy Dept	PD	2/10/99	9.20am	16/10/99	9.30am	336.10	5.36
(Out door)		16/10/99	9.30am	30/10/99	9.30am	336	6.03

Table 5 Concentration of NO_2 obtained for November

Site	Code	Start Date	Time	End Date	Time	Time hours	Conc in $\mu g/m^3$
Main Theatre	MT	1/11/99	9.00am	15/11/99	9.00am	336	5.83
(indoors)		15/11/99	9.00am	30/10/99	9.15am	338	6.22
Pharmacy Dept	PD	1/11/99	9.30am	16/10/99	10.30am	337	6.02
(Out door)		15/11/99	10.30am	29/11/99	10.30am	336	5.60

6.22µg/m³ in the operating room. For the first month of sampling, a maximum concentration of 6.20µg/m³ NO_2 was obtained. For the month of August. NO_2 was found to vary from 6.02 – 6.12µg/m³. In the outdoor site, a range of 5.92 – 6.02µg/m³ NO_2 was obtained.

In the third month measurement, a mean NO_2 concentration of 6.03µg/m³ was measured, while a mean of 5.04µg/m³ was obtained outdoor. In November the last month of measurement, a range of 6.08 – 6.12µg/m³ NO_2 was obtained in the operating room. In the outdoor site, a range of 5.60 – 6.02µg/m³ NO_2 was recorded.

Discussion of results

As seen from the tables, low concentration of NO_2 were recorded at both the operating room and the outdoor site created as a control. It is essential to state that this investigation is preliminary and embarked upon in response to anxiety expressed by doctors operating in the theatre for fear of possible exposure to excessive level of nitrogen dioxide a pollutant with deleterious effects. The low level of NO_2 obtained indoors in this study when compared with FEPA standard of 75 - 113µg/m³ NO_2 daily average of hourly value range, indicates that N_2O might not be contributing significantly to the NO_2 budget in the operating room. As equally seen in the tables, no significant differences were observed in the indoor and outdoor NO_2 level for the five months of investigation. However, because we are talking about trace concentrations which are very significant in pollution studies, it is essential to highlight therefore that the NO_2 concentration obtained in the operating room was slightly higher than that obtained outdoor. This observed variation in the NO_2 levels in the two sites might be due to the use of N_2O as an anaesthetic agent in the operating room which is a potential source of NO_2. The major anthropogenic source of NO_2 in the atmospheric is the combustion of fossil fuels. Though nitrous oxide has been indicated as a potential source of NO_2 through the initial formation of NO, the formation process is predominantly photochemical and therefore should be of utmost significance in the stratosphere. The low concentration of NO_2 obtained in the operating room and the lack of obvious differences in the concentrations obtained at the two environments confirm therefore that the use of nitrous oxide cannot contribute significantly to the nitrogen dioxide budget in the troposphere. Though the level of NO_2 obtained in this study is low, efforts should be geared towards preventing an upsurge. It is equally essential to point out that accumulation of low concentration of a pollutant over a long period of time can be lethal with attendant catastrophic consequences.

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Schwannoma of the left brachial plexus mimicking a cervicomediastinal goiter in a young Nigerian lady.

*D. O. Irabor[1], J. K. Ladipo[1], F. N. Nwachokor[2] and J. O. Thomas[2]

Departments of Surgery[1] and Pathology[2], University College Hospital, PMB 5116, Ibadan, Nigeria

Summary

The schwannoma is thought to arise from the schwann cells of the nerve sheath. This tumor is usually solitary and may arise from any cranial or peripheral nerve[1]. It is encapsulated and appears to arise focally on a nerve trunk so that the nerve itself is stretched over the tumor rather than running through it as in neurofibroma[1]. This report is unusual as the tumor started as a cervical swelling which subsequently grew into the mediastinum simulating a retrosternal goiter. The patient, a 25 year-old female was referred to the University College Hospital, Ibadan, 24 hours after an attempted thyroidectomy at a private hospital. The history was of a painless anterior neck swelling of 4 years duration devoid of symptoms of hyperthyroidism with associated dysphagia and weakness of the left hand. Examination showed an asthenic young woman. Her voice was hoarse but there were no eye signs suggestive of thyrotoxicosis. On the anterior neck was a sutured skin-crease scar over a diffuse anterior neck swelling which one could not get below. The left hand showed wasting of the thenar and hypothenar eminences. Thyroid function test results were within normal limits, indirect laryngoscopy showed a left vocal cord paralysis, packed cell volume was 38%. Her chest x-ray showed a huge left retrosternal and apical soft tissue mass displacing the trachea to the right (figure 1). A fine needle aspiration cytology was reported as a chronic lymphocytic thyroiditis. A presumptive diagnosis of thyroid carcinoma with retrosternal extension was made.

At surgery, manipulation of the mass was difficult as the tissue was soft, slimy and ruptured easily. Severe hemorrhage was encountered necessitating a median sternotomy to control the bleeding vessels. Her post-operative period was stormy, however she thereafter made gradual progress to warrant her discharge six weeks post surgery.

Résumé

On avait pensé que le schwannoma se produit à travers les cellules schwann du nerf de gaine. D'ordinaire, cette tumeur est toujours solitaire et peut se produire à travers n'import quel crânien ou nerf périphéque il s'était capsulé et il parait qu'il se produit surtout sur un nerf de tronc du manière que le nerf lui- même s'étend sur la tumeur au lieu d'aller directement comme en est le cas dans le neurofibrome. Ce rapport se voit rarement parce que d'abord la tumeur commence comme une bosse cervicale qui sé développe et finalement devient un mediastinum avec la tendance d'être un goitre retrosernal. La malade est une femme. Elle avait 25 ans et envoyée au Collège Hospitalier Universitaire d'Ibadan, tout juste 24 heures après un effort de faire la thyriodectomie dans un hôpital privé.

L'histoire de la maladie est que l'extérieur de son cou est gonflé et elle ne sentait aucune douleur au cours d'une période de 4 ans et il n'y avait pas de symptômes de l'hyperthyriodism lié avec la dysphagie et la faiblesse dans la main gauche. Après avoir passer une visite médicale, on avait pu noter que cette femme avait la maladie d'asthenique. Sa voix enrouée il n'y avait pas de signes dans les yeux qui peuvent indiquer la thyrotoxicosis.

A l'extérieur du cou se trouve une cicatrice d'une suture sur l'antérieur du cou gonflé. Dans la main gauche, on peut voir très clairement le thenar et l'hypothenar. Les résultats d'examen du fonctionnement de la thyriode était normal. Le laryngoscope indirect, la méthode, indirecte du laryngoscope a montré que la paralysie des cordes vocales de l'endroit gauche, le tamponnement du volume de la cellule était 38%.

Le rayon X de sa poitrine a montré un grand retrosternal dans l'endroit gauche et une collection de tissue apical mou qui avait deplacé la trachée artère vers le côte droite (illustration I). On avait pu noter une aiguille fine aspiration cytologique comme un lymphocytic thyroiditis chronique. On avait effectué une diagnose de la thyroid carcinome avec retrosternal prolongé.

Au cours de la chirurgie le manoeuvre de cette collection était difficile parce que le tissue était mou, limoneux et facilement rompu. On avait subi à une hémorrhagie grave ce qui avait nécessité une vein médiane sternotomie pour régler les vaisseaux saignants. Sa période postopératoire était très très touchante; heureusement, elle s'est rétablie d'une manière progressive et six semaines plutard après la poste chirurgie elle est sortie de l'hôpital.

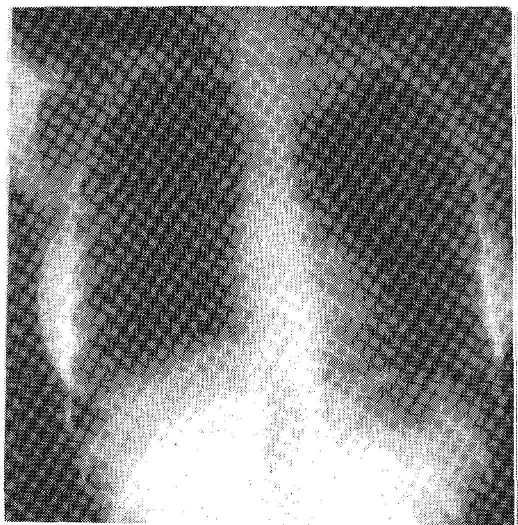
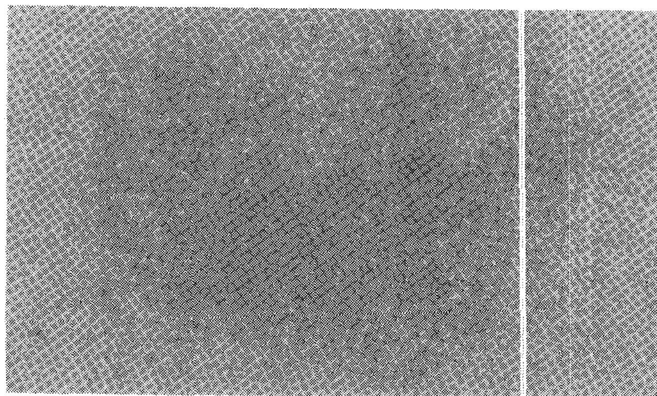
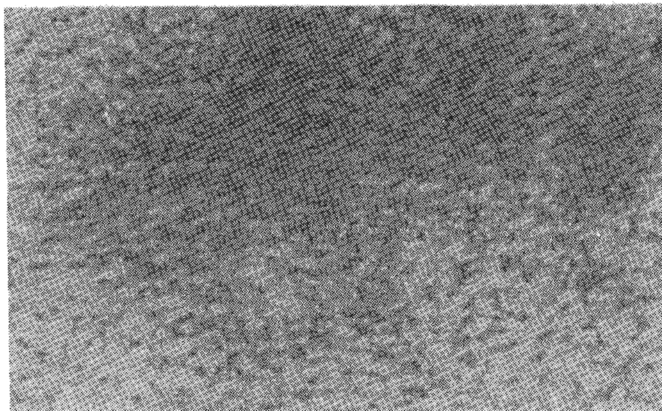


Fig. 1 ***Plain chest X-ray of the patient showing a cervicomediastinal mass displacing the trachea to the right***



Photomicrograph showing antoni A differentiation within the same excised specimen.

**Correspondence*



Photomicrograph showing antoni B differentiation

Comments

Schwannomata could be likened to the "great imitators" like tuberculosis, syphilis and lipomata. This is due to their ability to arise from any organ or tissue that possesses myelinated nerves, thus they may produce mass lesions which could mimic disease otherwise caused by the particular organ or tissue in that location[2,3,4]. The patient in this report had a schwannoma of the left brachial plexus presenting as a cervicomediastinal goiter.
Schwannomas of the salivary glands mimicking pleomorphic adenomas are reported [2,3], also reported are schwannomas of the cervical sympathetic chain leading to Horner's Syndrome[5] and schwannomas of the vagus and phrenic nerves appearing as mediastinal masses[6,7].

Brachial plexus schwannomatas have been reported to manifest as causing nerve compression symptoms[8] which our patient experienced or an abnormal mediastinal shadow on plain chest-xray due to intrathoracic extension[9]. Preoperative diagnosis of schwannomata is difficult especially in the head and neck where they are reported to be rare[4]. Fine needle aspiration cytology may be helpful in some cases, however the pitfall of aspiration cytology is that it can be non-specific[10]. In the absence of Verocay bodies, the cytological appearance of schwannomas can be non-specific with differential diagnosis including a number of spindle cell lesions. The diagnostic accuracy however can be enhanced by the use of electron microscopy and immunocytochemistry[10].
Major of the diagnoses of schwannoma are therefore made at surgery or through histopathological examination. Features that supported a cervicomediastinal goiter included the anterior cervicomediastinal mass, the chest-xray appearance, the left vocal cord paralysis and the fine needle aspiration cytology report suggesting thyroiditis.
The lessons learnt from this case underscores that fact that not all anterior neck swellings are of thyroid origin, and when features do not quite fit what should be a "spot diagnosis" type of lesion, one should think of any of the great imitators.

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Effects of oral contraceptives on total serum proteins, albumin, globulins and cholesterol levels in Ibadan, Nigeria.

***K A. Obisesan[1], F. A Adenaike[2], M. A. Okunlola[1] and A. A. Adenaike[2]**
Department of Obstetrics and Gynaecology[1], College of Medicine University of Ibadan, Department of Chemical Pathology and Haematology[2], Obafemi Awolowo College of Health Sciences, Ogun State University, Ago-Iwoye, Nigeria.

Summary

Total serum protein, albumin, globulin, albumin/globulin ratio and cholesterol levels were determined in 25 subjects on oral contraceptives and 25 controls. The mean serum total protein, globulin and cholesterol levels were significantly increased in oral contraceptive and their control counterparts. The albumin/globulin ratio in subjects on oral contraceptives users is significantly decreased compared with controls. In view of the findings of this study, it is suggested that the biochemical profile of long term oral contraceptive users be assessed periodically.

Key words: ***Total serum protein, Albumin, Globuline.***

Résumé

Sérum protéine totale, albumine, globuline, le rapport albumine/globuline et le niveau du cholestérol tous étaient déterminés chez 25 clients, en utilisant contraceptifs oraux (vaccin) buccal; et 25 des cas témoins.
La moyenne sérume protéine totale, globuline et le niveau du cholestérol avait été manifestement augumentés sur contraceptifs oraux et chez les cas témoins contre-parties. Le rapport albumine/globuline chez les clients qui utilisent les contraceptifs oraux était en baisse par rapport aux cas témoins.
Prenant les résultats de cette étude en consideration nous proposons qui l'on entre prend l'evaluation périodique d'un enregistrement biochimique à long terme des utilisateurs des contraceptifs oraux.

Introduction

Since the introduction of the oral contraceptive, so called the "Pill", into the market at the middle of the 20th century, several millions of women in the reproductive age agroup all over the world have made use of it to prevent unwanted pregnancies and abortions and also to permit improvement in the timing of childbirth. The efficacy of the oral contraceptives has never been in doubt, with only about 0.34 pregnancies per 100 woman year; however, more worrisome are the documented side effects. As a matter of fact, evidence suggesting that oral contraceptives might have negative effects on health other than the prevention of pregnancy began to appear shortly after the drugs were introduced.

The widespread use of hormonal contraceptives provides an opportunity for assessing the influence of estrogens and progestrogens on various biochemical parameters of the female. It is even possible that some of the side effects of these compounds might be associated with such metabolic effects[1]. Whichever way it is viewed, it seems important to ascertain whether there are changes in the results of various biochemical tests in women taking hormonal contraceptives.

Oral contraceptives have been implicated in many diseases such as thromboembolic disease[2], myocadiac infaction[3] circulatory disorder and carcinogenicity[4]. Furthermore, it's negative effects on the liver, heart, diabetes, obesity, hypertension and high serum cholesterol levels are well documented[5,6,7].

The biochemical profile of women on oral contraceptives showed different changes in plasma total protein, albumin and cholesterol levels[8,9]. Available data on this topic are mostly from developed countries and frequently on caucasians. On the contrary, there is paucity of information on the effects of oral contraceptives on Nigerian women. Indeed, this is about the first time in our environment that such a comprehensive assessment of the biochemical parameters of oral contraceptive users in Nigerian women using oral contraceptives is undertaken, with a view to ascertaining changes, if any, on these biochemical parameters.

Subjects and method

Twenty five healthy Nigerian women who have been on oral contraceptive for a period of six months to three years were selected for this study. Their ages ranged from 18 to 34 years with a mean of 22.76 years SD. All the subjects were regular clients of the family planning clinic of the Department of Obstetrics and Gynaecology, UCH, Ibadan. Similarly 25 control subjects were selected with age range 20-32 years with a mean of 24.6 SD ± 3.1 years. Students and staff of the University College Hospital, Ibadan formed the majority of the control group and they were non-users of oral contraceptives. Five militres of venous blood was collected from each of the 50 subjects using sterile syringes and hypodermic needles with the patients in sitting position. The blood samples were immediately centrifuged in an MSE CENTAUR 2 centrifuge at 3000 revolutions per minute for five minutes. The serum was separated and stored frozen at – 20°C,
The total serum protein was determined using the method described by Reinhold (1953). This is based on the ability of alkaline curpic solution to react with at least two peptide bonds to form a violet colour, which is estimated at 540nm. The colour development takes about 15 minutes.

Serum albumin was determined as described by Doumas et al (1971) and modified by Spencer and Price (1978). This method is based on the fact that bromocresol green at a point below the isoelectric point of albumin reacts with albumin to cause a change in colour which is proportional to the amount of albumin present.

The determination of serum cholesterol is done according to the method by Trinder (1969) and modified by Richmond (1973) using the colorimetric end point cholesterol kit reagent from Randox Laboratories, Ireland. This method is based on the principle that free cholesterol and cholesterol released from its esters are oxidised after enzymatic hydrolysis. Statistical analysis of data was performed using student's t'test for comparison of two variables and the chi squared (X^2) test for the degree of association between two variables. P = 0.05 was taken as being significant.

Results

The mean serum total protein, albumin and globulin levels in subjects on oral contraceptives are significantly higher compared with the control subjects whereby P<0.001; P<0.05 and P<0.001 respectively as shown in Table 1. The albumin/globulin is significant P<0.001.

As regards the total serum cholesterol level, subjects on oral contraceptives show significantly increased serum cholesterol levels when compared with the control group. P<0.001 Table 1.

Table 2 shows the relationship between the degree of elevation of serum total protein in both subjects and their controls. All the users 25 (100%) had significantly elevated serum total protein levels of more than 72g/litre. About 12(48%) of the control group had serum total protein levels of between 45 – 72g/l (X^2 = 15.7895) P<0.001.

The elevation of serum albumin levels in oral contraceptive

**Correspondence*

users is marginally increased when compared with the control X^2 = 1.33 and P <0.20 as shown in Table 3.

Table 1 Comparison of mean value of Toral serum protein albumin and Globulin, albulin/globulin ratio, cholesterol in subjects on oral contraceptives and the control subjects.

Control (n=25)			Oral Contraceptive users (n = 25)			
Parameter	**Means**	**SD**	**Mean**	**SD**	**+ Value**	**P-Value (n = 25)**
Total protein	72.0	7.7	93.7	8.2	6.644	<0.001s
Albumin	49.0	6.4	55.2	6.8	1.333	<0.005
Globulin	22.8	6.0	38.4	16.5	4.445	<0.001
Albumin/globulin Ratio	2.5	1.6	0.8	0.8	39.333	<0.001
Total Serum/ Cholesterol	5.4mmo 1/1	7.2	0.4	0.4	10.112	<0.001

Table 2 Relationship between degree of hyperproteinaemia on control subjects and subjects on oral contraceptives

	Serum total protein concentration				
	45 - 72g/l		>>72g/l		
Subjects	**n**	**%**	**n**	**%**	**Total**
Controls	12	48	13	52	25
Contraceptive user	0	0	25	100	25
Total	12	-	38	-	50

X^2 = 15.7895 *P < 0.001*

Table 3 Relationship between degree of increased serum albumin in Control subjects and subjects on oral contraceptives

	Serum albumin concentration				
	27 - 49g/l		>>49g/l		
Subjects	**n**	**%**	**n**	**%**	**Total**
Controls	12	48	13	52	25
Subjects on oral contraceptive	8	32	17	68	25
Total	12	-	30	-	50

X^2 = 1.333 *P > 0.20*

Table 4 Relationship between elevated serum globulin in oral contraceptive users and their controls

	Serum globulin concentration				
	05 - 22.84		20.38.4		
Subjects	**n**	**%**	**n**	**%**	**Total**
Controls	12	48	13	52	25
Subjects on oral contraceptive	8	32	17	68	25
Total	12	-	30	-	50

X^2 = 15.385 *P < 0.001*

Table 5 Relationship between increased total serum cholesterol levels in control subjects and subjects on oral contraceptives

	Total serum cholesterol concentration				
	4.0 - 5.4 mmol/l		>>5.4m		
Subjects	**n**	**%**	**n**	**%**	**Total**
Controls	12	48	13	52	25
Subjects on oral contraceptive	0	0	25	100	25
Total	12	-	38	-	50

X^2 = 15.7895 P < 0.001

Majority 24 (96%) of the contraceptive users had serum globulin levels of more than 22.84g/l while the controls showed significantly lower levels of between 05-22.84g/l X^2 = 15.385 P <0.001 see table 4. As shown in table 5 all subjects 25(100%) of oral contraceptive users had higher serum cholesterol levels more than 5.4m mol/l compared with the controls with values between 4.0 – 5.4mmol/l X^2 = 15.7895 P<0.001.

Discussion

During contraceptive medication the most pronounced changes are usually in the concentrations of total serum proteins and albumin, with an increase in proteins and a decrease in albumin concentration. The quantitative pattern of alterations is in accord with the results of previous electrophoretic determinations which had shown a decrease of albumin and increases in globulins during the administration of contraceptives[6,10].

In our study, we arrived at similar results with regards to significant elevation of serum protein, globulin and cholesterol, but serum albumin level showed no significant difference in oral contraceptive users compared with controls (P>0.20). This result of serum albumin level is at variance with a reported moderate decrease of serum albumin in oral contraceptive users as reported by other workers [10,11].

It has been suggested in previous studies that the increased total protein levels in subjects on oral contraceptives might be due to an increase in certain carrier proteins such as transferrin, ceruloplasmin, hormone binding globulin, and thyroxin binding prealbumin. Also, the estrogen content in oral contraceptives is said to be responsible for the increased total proteins[12,13].

Furthermore, quantitative determinations of serum proteins by other workers have also demonstrated an increase in lipoproteins, ceruloplasmins, alpha 1 – antitrypsin and transferrin after administration of estrogens or oral contraceptives[6,10,14]. It is also documented that pregnancy and oral contraceptives appear to produce similar changes in serum proteins as reported by other researchers[6,15,16]. However, these reports had been contradictory in certain respects.

It has also been established that the serum levels of some coagulation related proteins such as fibrinogen, factors VII, VIII, Antithrombin – III and plasminogen as well as some acute phase proteins such as alpha 1 – antitrypsin tend to rise in oral contraceptive users[17].

Our study has also shown that serum globulin is significantly increased in oral contraceptive users compared with controls (P<0.001). This result is similar to the findings of previous workers[6,18]. The study further shows that albumin/globulin ratio (1.6) in subjects on oral contraceptive is significantly decreased compared with control value (2.5) P <0.001. This disparity in the ratio is apparently due to the significantly increased serum globulin levels in subjects, compared with controls.

The level of serum cholesterol in subjects on oral contraceptives in this study is significantly increased compared with controls P<0.001. This elevation of serum cholesterol level may have been influenced by the oestrogen content in oral contraceptives. Several previous workers came to similar results[17,18,19].

In conclusion this study has demonstrated the need to periodically reassess the biochemical parameters of oral contraceptive users, especially those who have been on the steroids for a long time. This is necessary in view of the subtle but significant biochemical changes as regards increases of total protein, albumin and cholesterol levels demonstrated here. However, further studies that will recruit a larger number of subjects on the oral contraceptive pill for a longer duration of time would be valuable in this regard before conclusive statements can be made on the effect of oral contraceptive use on these parameters.

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The prevalence of glaucoma in an onchoendemic community in South-Eastern Nigeria

***Chimdi M. Ekwerekwu and R. E. Umeh**
Department of Ophthalmology, University of Nigeria Teaching Hospital, Enugu, Nigeria.

Summary
***Methodology*: With the aim of examining all the adults aged 30 years and above a survey was conducted in Alum-Inyi, a mesoendemic Community in South-Eastern Nigeria. The people were subjected to basic ophthalmic tests for the diagnosis of glaucoma namely corrected and uncorrected visual acuity at 6 metres using an illiterate E-chart, with pinhole assessment if visual acuity < 6/18; direct ophthalmoscopy to assess the vertical cup-disc ratio through undilated pupils and Schiotz indentation tonometry. In addition, static visual field analysis using the MK 1 Friedman visual field analyser was carried out in any glaucoma suspect.**

***Results*: Of 664 eligible persons examined (out of the estimated total of 946), 14 definite cases of glaucoma were identified, giving a prevalence of 2.10% in the 30 years of age and older population. The mean vertical cup-disc ratio for the non-glaucoma cases were 0.30 (+0.004) and 0.31 (±0.004) and 0.31 (± 0.09) in the right and left eyes respective.**

Among the glaucoma cases, the average vertical cup-disc ratio in the right and left eye were 0.63 (± 0.05) and 0.70 (± 0.06 respectively.
No physiological cup of ≥ 0.6 was recorded in our study. The mean IOP in the right and left eyes respectively were 18.54 (±0.15) and 19.42 (±0.14) in the nonglaucomatous cases and 26.39 (± 1.75) and 27.46 (± 2.59) in the glaucoma cases.

***Conclusion*:**
Despite its limitations, this study confirms that the prevalence of glaucoma varies from one African population or population of African origin to another. It agrees with other reports that the risk of glaucoma increases with age.

Key words: *Glaucoma, Onchoendemic.*

Résumé
Méthodologie: Une étude a été effectué à Alum-Inyi dans la communauté mesoendémique au sud-est du Nigéria, afin d'examiner les adultes âgés de 30 ans et plus de trente. Ce peuple étaient soumis aux éprouves foundamentaux d'ophtalmique pour la diagnose de glaucome c-à-d acuité visuelle rectificative et non-rectificative à distance 6 metres en utilisant le E-chart analphabète – une avec évaluation trou d'épingle dans le cas où l'acuité visuelle <6/18; ophtalmoscopie directe pour évaluer la proportion cup-disc vertical à travers les pupilles sans dilater et schiotz découpade tonometrie.
En outre, l'analyse visuelle statique en utilisant le MK 1 Friedman Visual field analyser dans le cas présumé de glaucome.
Resultat: Parmi les 664 cas présumés étudiés (dans le grand numbre de 946) on a pu identifier 14 cas précis de glaucomes avec la fréquence de 2,10% chez les gens de la classe 30 ans et plus de trente. La proportion moyenne verticale cup disque pour les cas non-glaucomes étaient 0,30 (+0,004) et 0,31 (± 0,09) dans les yeux droite et gauche respectivement.
Parmi les cas de glaucome, la proportion moyenne verticale cup-disque dans les yeux droite et gauche étaient 0,63 (± 0,05) et 0,70 (± 0,06) respectivement.
La non physiologie tasse de >0,6 était noté dans notre étude. La moyenne IOP dans les yeux droite et gauche respectivement étaient 18,54 (± 0,15) et 19,42(± 0,14) dans les cas nonglaucomes et 26, (± 1,75) et 27,46 (± 2,59) dans les cas glaucomes.
Conclusion: En dépit de ses bornes, cette étude a confirmé que la fréquence de glaucome varie d'une population d'origine africaine à l'autre. Cette étude est en rapport avec la convention courrant qui soutient le fait que le problème de glaucome s'accroit avec l'âge.

Introduction

Glaucoma is the third leading cause of blindness in the world. About 5.2 million people are blind from it[1]. In Africa alone, there are estimated to be at least 1.5 million blind from glaucoma and 20% of these will be found in Nigeria with a population of approximately 100 million[2].

There is evidence that chronic open-angle glaucoma (COAG) occurs with higher prevalence, earlier onset and greater severity in black patients than in white, and blindness from COAG maybe 8 times more common[3-10]. However, in Africa itself the available reports suggest that the disease varies in frequency from one geographical area and one ethnic group to another[4].

Most existing information on glaucoma blindness in Nigeria is from blindness surveys and clinic-based studies in various parts of the country. The proportion of total blindness due to glaucoma from clinic-based studies in Nigeria ranges from 6.6%[11] to 20%[12] while that from blindness surveys ranges from 7.6%[13] to 15.56%[14]. In the first population-based study to measure the prevalence of glaucoma and glaucoma-relationed parameters in the onchoendemic and non-endemic communities in Kaduna, Northern Nigeria, Murdoch noted that the prevalence of glaucoma was generally lower than that reported in other studies in blacks.

Onchocerciasis is a public health problem in large areas of West and Central Africa, and complicates the assessment of glaucoma in these areas because it causes secondary glaucoma as well as optic atrophy. This glaucoma survey was conducted in Alum-Inyi, a community mesoendemic (skin snip positivity: 30-60%) for onchocerciasis in South-Eastern Nigeria, with the aim of examining all the adults aged 30 years and above.

This is the first population-based study on glaucoma in Southern Nigeria and the second in Nigeria.

Method

Alum is one of the nine villages that make up Inyi town in Oji River Local government Area of Enugu State. A rapid census by the executive and health committee members of Alum progressive Union (APU) gave an estimate of 1,422 adults aged 30 years and above, of which 476 had migrated to urban areas. The estimated 946 eligible were invited to attend for examination in the community hall, and those not attending were followed up by personal contact by the mobiliser, voluntary health worker, chairman of the APU, other elders, and by other methods. Fifty adults who could not come to the central location were examined at home.

Examination consisted of

a) Visual Acuity Assessment: Corrected and uncorrected visual acuity using the illiterate E-chart with multiple optotypes at 6 metres was checked. If either acuity was < 6/18 an assessment with pinhole was performed. Vision for each eye was recorded (according to WHO classification) as

**Correspondence*

1. for 6/6 – 6/18
2. for < 6/18 – 6/60
3. for < 6/60 – 3/60
4. for < 3/60 - NPL

The grade of vision in the better eye was recorded as the persons vision.

b) Vertical cup-disc ratio estimation using the direct ophthalmoscope: Vertical cup-disc (i.e. vertical diameter of the disc) measurement was achieved by examining the disc through the undilated pupils of the participant.

c) Indentation tonometry by schiotz tonometry with the standard 5.5g weight: The procedure was first explained to the patient to obtain his co-operation then xylocaine drops instilled into the inferior conjunctival fornix. Two minutes later when topical anaesthesia had been achieved the test was carried out with the patient lying supine.

Only one reading of the intraocular pressure was taken.

d) Visual field analysis: Static visual field analysis using the MK 1 Friedman visual field analyser was carried out in any glaucoma suspect. The fields were measured first with threshold for estimated age, then consecutively with two higher thresholds.

Definitions

For the purposes of this study, a glaucoma case fulfills at least two of the following three criteria, in one or both eyes:

1. Either a vertical cup-disc ratio of ≥ 0.5 or asymmetry of disc cupping of ≥ 0.2;
2. Intraocular pressure of ≥ 28mmHg;
3. Field defect characteristic of glaucoma.
4. Glaucoma suspect is a person who, prior to visual field testing, fulfilled either of the first two criteria.

Results

Out of the estimated 946 total eligible population aged 30 and over in the village, 664 people were examined (70%). There were more females (69%) than males.

Fifty one glaucoma suspects were tested for visual field defects, and 14 definite cases of glaucoma were found. This gave a prevalence of 2.1% in the population aged 30 and over and 2.78% in those 40 and above. Only two of these 14 cases had previously been diagnosed. There was no difference in the occurrence of glaucoma between the sexes. The proportion of the general population with glaucoma increased with age, so that 11 of the 14 cases occurred over the age of 59 (Table 1).

Table 1 Glaucoma by age

Age-group	Number examined	Glaucoma cases
30-39	196	1
40-49	137	1
50-59	129	1
60-69	136	6
70-79	60	4
80+	6	1
Total	664	14

The bases of the diagnosis of glaucoma was the vertical cup-disc ratio ≥ 0.5 and characteristic field defect in 7 cases; cup-disc ratio ≥ 0.5 plus IOP ≥ 28mmHg in 6 and raised IOP plus characteristic field defect in 1.

Onchocerciasis was not associated with a high prevalence of glaucoma.

The distribution of vertical cup-disc ratio in non-glaucomatous subjects is shown in Table 2. Apart from cases of non-glaucomatous optic atrophy, presumed to be due to onchocerciasis, which were recorded as 0.9, no cup greater than 0.6 was recorded amongst the nonglaucomatous population.

Table 2 Cumulative frequency of vertical cup-disc ratio in the non-glaucoma cases

Vertical cup-Disc ratio Ratio	Nos R	Cumulative Frequency (%) (R)	Nos L	Cumulative Frequency (%) (L)
0.1	29	4.6	27	4.2
0.2	159	29.6	142	26.6
0.3	275	72.9	273	69.7
0.4	141	95.2	159	94.8
0.5	25	99.2	28	99.2
0.6	2	99.2	3	99.7
0.7	-	-	-	-
0.8	-	-	-	-
0.9	3	100	2	100

Comparatively, among the glaucoma cases the mean vertical cup-disc ratio were 0.63 (± 0.06) and 0.70 (± 0.05) in the right and left eyes respectively.

Table 3 Cumulative frequency of intraocular pressure in the non-glaucoma cases

Intraocular Pressure	Nos R	Cumulative Frequency (%) (R)	Nos L	Cumulative Frequency (%) (L)
10	3	0.5	1	0.2
12	48	8.3	29.7(30)	5.0
15	118	27.6	62	15.0
17	119	55.1	195	46.5
21	167	82.4	185	76.3
24	106	99.7	144	99.5
29	1	99.8	3.0	100
35	1	100	-	-

The distribution of intraocular pressure in non-glaucomatous subjects is shown in Table 3. More than 70% of the nonglaucomatous glaucomatous population recorded IOP of ≤ 21mmHg in either eye. Table 4 summarises the mean vertical cup-disc ratio and IOP recorded in both glaucoma and non-glaucoma cases.

Table 4 Vertical cup-disc ratio and IOP in both glaucoma and non-glaucoma cases

	Mean vertical cup-disc ratio (R) ± SD	Mean vertical cup-disc ratio (L) ± SD	Mean IOP (mmHg) R ± SD	Mean IOP (mmHg) L ± SD
Glaucoma Cases	0.63(±0.06)	0.70(±0.05)	26.39 (±1.75)	27.46 (±2.59)
Non-glaucoma Cases	0.30(±0.004)	0.31(±0.09)	18.54 (±0.15)	19.42 (±0.14)

The difference in mean IOP between the two groups was statistically significant (student's t-test: P = 0.000).

Discussion

This was a population-based study aimed at examining all the adults aged 30 years and above in the community estimated to be 946 of which we were able to examine 664 (participation rate of 70%).

The prevalence of glaucoma was found to be 2.1% in those aged 30 years and above and 2.78% in those aged 40 and over. These values are lower than those found in ≥ 30 year-olds in St. Lucia (8.8%)[15] and ≥ 40 year-olds in Barbados (7%).

The Liberian survery[16] also reported a 4.35% prevalence of glaucoma in those aged 40 years and above. These differences in estimates may be accounted for by differences in sampling meth-

odology, procedures and case-definitions.

Our study demonstrated an increase in prevalence of glaucoma from 0.15% in those aged 30-39 years to 16.67% in the 30 year-olds and over. This finding agrees with those of other studies[8,15]. However, it should be noted that the results are not comparable by case-definitions, sampling methodology and procedures but they do confirm the trend towards higher prevalences with age as much as > 10% in the 80 year-olds and above in blacks.

The mean vertical cup-disc ratios in our study were found to be 0.30 (±0.004) and 0.31 (± 0.09) for the right and left eyes of the non-glaucoma cases respectively, lower than what was expected in an onchoendemic community. Those with cup-disc ratio of 0.3 constituted the highest proportion (frequency 43% for each eye). This was similar to Vaughan's study in Jamaica[17] where the greatest proportion of the people had cup-disc ratio of 0.2 and 0.3, frequency of 23.9% each. Murdoch[2] in this study in the onchocerc mesoendemic communities in Northern nigeria got the following cup-disc ratio:

	Males	Females
R:	0.35	0.33
L:	0.35	0.32

A students t-test comparing the findings in males and females showed a slightly greater mean vertical ratio in the males. In our study the findings were:

	Males	Females
R:	0.29	0.30
L:	0.31	0.31

There was no significant difference in cup-disc ratio between the sexes and no change with age observed in our study. The inability of our study to observe any association between cup-disc ratio and age as well as sex may be due to its small size.

The mean IOP in our study were 18.54 (±0.15) and 19.42 (±0.14) in the right and left eyes respectively. There was no difference between the sexes. Murdoch in onchoendemic communities in Northern Nigerian reported mean IOP of 13.4 (±0.4) mmHg in the right eye.

These studies are not comparable because of the difference in instruments and methods of measurement employed for each, however, our finding of no difference in IOP between the sexes agrees with the findings by David et al[18] and Murdoch[2]

Sources of systematic (non sampling) errors in this study include:

1. under-coverage because of an incomplete census.
2. Significant non response rate of 30% which may also be an under-estimate.
3. Methodology:
   - i) Field analysis was carried out on only suspects selected based on abnormal cup-disc ratio or raised intraocular pressure. This is not a very sensitive method of detecting glaucoma.
   - ii) Method of the field analysis: Humphrey's central visual field analyser which, currently, is the most sensitive visual field analyser starts detecting visual field defects when at least 50% of optic nerve fibres have been lost.
   - iii) Single tonometric readings: The intraocular pressure shows a diurnal variation so single tonometric readings in a day do not give the true picture of the patient's intraocular pressure status.
   - iv) Confirmation of glaucoma was not possible in 16 cases examined. This could give a falsely lower estimate of the prevalence of glaucoma.

Conclusion

Despite its limitations, this study confirms that the prevalence of glaucoma varies from one African population, or population of African origin, to another. It agrees with other reports that the risk of glaucoma increases with age, particularly after the age of 60

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The prevalence of hand pain in Ibadan – implications for the carpal tunnel syndrome

O. O. Oyedele, *M. T. Shokunbi and A. O. Malomo
Department of Anatomy, College of Medicine, University of Ibadan, Nigeria.

Summary

Hand pain or brachialgia paraesthetica nocturna (BPN) is a series of symptoms described as "waking up at night due to unpleasant sensations in the fingers" (Dekrom et al, 1992). Usually, these symptoms form the first rungs up the ladder leading up to the carpal tunnel syndrome (CTS) (Skandalakis et al, 1992), and thus are used as part of the diagnostic criteria for the disorder.

We describe the results of a questionnaire survey of 422 patients attending two major hospitals in Ibadan, Nigeria for complaints unrelated to hand pathology. Questions related to the bio-data (including type of occupation), general health status, past medical and/or surgical history, and finally hand symptoms of the patients. For a patient to be positive for BPN, the hand symptoms had to correspond to the cutaneous distribution of the median nerve.

Positive cases formed 12.75% of all interviewees in one hospital and 19.59% of respondents in the other, with females forming the bulk of those affected. This figure is somewhat higher than the ones previously reported. From earlier work on the predictive value of BPN for the carpal tunnel syndrome we conservatively estimate that between 20% and 38% of individuals in our study group will suffer from CTS.

The relationship of heavy hand-use to BPN was a negative one as most sufferers of BPN were light hand-users. However, individual occupations requiring highly repetitive flexion-extension wrist movements recorded many BPN cases.

No BPN case was confirmed when the patients presented in hospital, indicating that more awareness of the symptoms and signs of this disorder needs to be created among doctors and the general public. Also, we believe that more investigations, particularly among the general population, are needed to be able to define the prevalence of this condition more accurately.

Key words: ***Hand pain, Distribution, Carpal Tunnel Syndrome, Epidemiology.***

Résumé

La douleur à la main ou brachialgie para-esthétique nocturne (BPN) est des séries de symptômes décrit comme «réveil dans la nuit due a des sensations inconfortables aux doigts» (DeKrom et al, 1992. Habituellement, ces symptômes constituent les critères important pourrant conduire au syndrome du tunnel carpelle (CTS) (Skandalakis et al, 1992), et par conséquent font pardi des critères diagnostiques du mal.

Nous décrivons le résultat d'une enquête meree sur 422 patients visitant deux hôpitaux majeurs à Ibadan, Nigeria pour des plaintes non reliées à la pathologie des mains. Des questions liées aux données biographiques, état général de santé, l'historique médicale et chirurgicale et finalement symptômes des mains du patient. Pour qu'un patient soit positif pour la BPN, les symptômes de la main doivent correspondent à la distribution cutanées des nerfs médians.

Les cas positifs constituent les 12.75% de tous les personne interviewèes dans un hôpital et 19.59% des respondants dans l'autre, avec les femelles constituant le lot des affectes. Cette figure est encaque sorte plus élevée que celle obtenues precedement. Des travaux précédents sur la valeur prédictive du BPN pour la CTS nous conservativement estimons qu'entre 20% et 38% des individus dans notre group d'étude souffrirons du CTS.

La relation entre l'usage difficile de la main et BPN et ait négative comme la majorité des souffrants du BPN étaient utilisateurs – facile de la main. Ce pendant des occupations personnelles demandant grandement la flexion-extension répétitive du poignet ont enregistres beaucoup de cas de BPN.

Aucun cas de BPN n'était confirme quand les patients se pressentaient à l'hôpital, ceci indique que la conscientisation des symptômes et de signes du mal drivent être crées parmi la population, sont nécessaires pour définir la prévalence de cette condition plus précisément.

Introduction

Nocturnal hand pain (brachialgia paraesthetica nocturna, BPN) is the most common feature of carpal tunnel syndrome (CTS). It is described as "waking up at night due to unpleasant sensations in the fingers"[1]. These unpleasant sensations include tingling, numbness, pain or 'burning pain' also known as causalgia2,3,4,5. Some authors6 refer to BPN as 'normal numbness' because it is most severe during sleep at night. Usually, these symptoms form the first rungs up the ladder leading up to CTS3, and thus are used as part of the exclusion criteria for the disorders.

Carpal tunnel syndrome and BPN are associated with certain risk factors. These can be classified into non-occupational and occupational factors[7]. The non-occupational factors may further be described as either local or systemic. Local factors include tenosynovitis, lipoma, calcium deposit, ganglion, previous wrist fractures and neuroma of the median nerve at the wrist[8,9]. Systemic factors include diabetes *mellitus*, hypertension, blood dyscrasias, cancer, collagen vascular diseases, acromegaly, rheumatism, leprosy, mumps and pregnancy3,9. Personal attributes such as age, sex, height and weight also strongly influence the development of CTS[1,2,6]. Occupation-related risk factors include repetitive (high-frequency) flexion-extension wrist movements, use of vibratory hand tools and repeated hand-exertion[7,10,11].

Considering the varied nature of the possible risk factors producing BPN, it is surprising that investigation into the distribution of the condition appears to be limited to the work place. Only a few notable studies[1,12] have addressed the incidence of BPN in the general population.

Occupationally, Nigerians are heavy hand users, although the spectrum of hand use is extremely varied. The factors involved in the genesis of BPN in this population are little understood. The purpose of this study is therefore to investigate the distribution of nocturnal hand pain along with some of its determinants amongst Nigerians residing in a typical urban south-western part of the country.

Materials and Methods

Four hundred and twenty-two (422) individuals were recruited into this survey, which was carried out by administering a semi-structured questionnaire on them. The researcher sat with the respondent and went over the questionnaire item by item, asking the questions and filling in the responses. The interviewees were patients attending hospital for complaints unrelated to BPN. They were recruited from two sites: the Ring Road State Hospital (RRSH) a secondary levelhealth care center and the University College hospital (UCH), Nigeria's oldest tertiary health institution. Both institutions are located in Ibadan, a city of about 2 million people[13].

**Correspondence*

One hundred and fifty-six patients were interviewed at RRSH while 266 were interviewed at UCH. All patients excluding children that were found in the tgeneral outpatient clinics of these hospitals within the survey period (June to August 1998) were interviewed.

The questionnaire consisted of 3 main sections dealing with: a) patient's biodata, b) past medical and surgical history and c) specific hand symptoms.

The presence of a confounding variable such as sex has the potential of giving misleading overall rates, when a significant difference exists between males and females in the parameter being studied. This informed our choice of analyzing data from the two hospitals separately, a practice similar to that of Kirkwood (1988)[14] and DeKrom et al (1991)[1]. Table 2 shows a simplified age-sex adjusted frequency distribution of our sample. In it, the fraction of each gender with BPN in each hospital is (by a complex computation) multiplied by the total number of males/females (i.e. row 5 multiplied by row 6, giving row 7). This gives the adjusted fraction, which is then added for each hospital (row 8). The total adjusted fraction for each hospital is then divided by the total sample (420), resulting in the age-sex-adjusted frequency for each hospital.

To eliminate any misunderstanding regarding the exact palmar distribution of symptoms, a diagram depicting the cutaneous distribution of the median nerve (see appendix) was shown to the interviewees.

Results

The UCH sample comprised 63% of the study population while the RRSH sample constituted 37%. Females formed majority of interviewees in this study, constituting about 57% of respondents with the males making up 43% (Table 1). The male to female ratio in the entire sample was 1:1.3.

Table 1 Age and sex composition of respondents

	Males n(%)	Females n(%)	Total n(%)	Mean age (M:F)	SD (M:F)
UCH	123(46)	143(54)	266(100)	36.6:35.6	0.58:.01
RRSH	58(37)	98(63)	156(100)	41.6:44.1	1.92:0.63
Total	184(42.9)	241(57.1)	422(100)		

P<0.05

The mean age of females in the UCH sample was 36.1 years (SD 1.11) with their male counterparts being a year older on the average (SD 1.59). The female mean age at RRSH was 44.6 years (SD 1.65) with a younger average male age of 42.1 9SD2.28; Figures 1a & 1b).

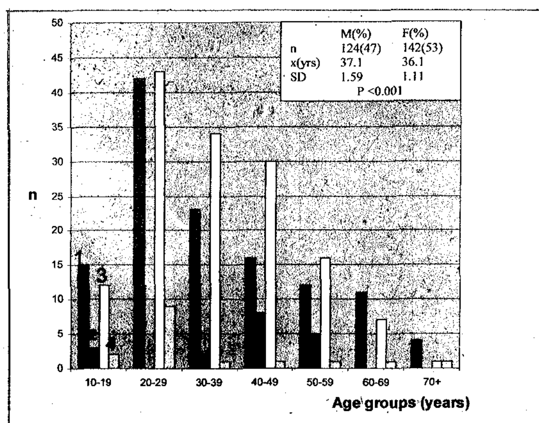

Fig. 1a *Age and sex distribution of respondents (UCH).*

The overall frequency for BPN in the UCH sample was 12.75% (95% Confidence interval, CI: 8.74%-16.76%, Table 2). For males alone this value was 6.77% (CI: 3.75%-9.79%). The female BPN frequency was slightly lower than their male counterparts in this group (6.02%; CI: 3.16-8.87%). In the entire RRSH sample, BPN frequency was 19.59% (CI: 13.36% - 25.82%). The male versus female values were 5.13% (CI: 1.67%-8.59%) to 17.95% (CI: 11.93%-23.97%).

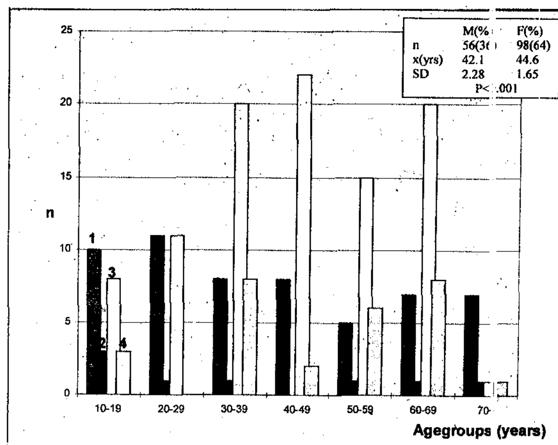

Fig. 1b *Age and sex distribution of respondents (RRSH)*

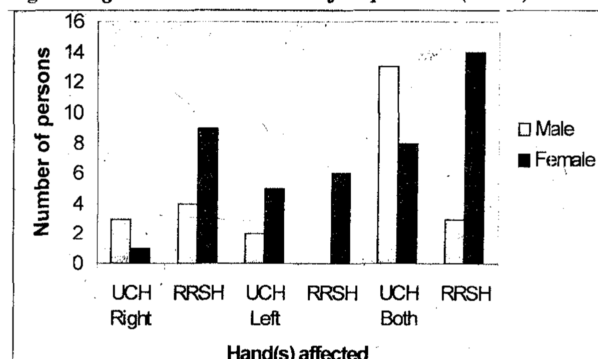

Fig. 2 *How BPN is distributed between the hands in males and females*

The various types of occupations observed in the survey were regrouped into two broad categories based on the degree of hand-use required on the job. The light hand-users were in the overall majority (84.6%). The frequency of BPN among heavy hand users was similar for both study locations (2.3%; CI: 0.50%-4.10% and 2.6%; CI: 0.1%-5.1% for UCH and RRSH respectively). Among light hand-users, the BPN frequency was higher than their heavy hand-using counterparts (UCH: 10.5%; CI: 6.82% - 14.18% RRSH 21.2%; CI: 14.79%-21.61%).

Table 2 Simplified age-sex adjustment of BPN distribuiton*

	UCH		RRSH	
	Males	Females	Males	Females
Persons interviewed	123	143	56	98
BPN	18	16	8	28
Fraction with BPN	0.146	0.112	0.143	0.286
Total gender number (UCH + RRSH)	179	241	179	241
Adjusted fraction (roughly = Fraction multiplied by gender Total)	27	27	24	59
Total adjusted Fraction (M + F)	54		82	
Adjusted Frequency = Total adjusted fraction ÷ Total interviewed(%)	12.75%		19.59%	

**The ages of two RRSH respondents could not be ascertained*

To obtain an assessment of the relationship between general health status and BPN, interviewees were asked the question "Have you been admitted in hospital in the last one year?" The frequency of nocturnal hand pain in hospitalized UCH respondents was a mere 0.8% (CI: 0.3%-1.9%) compared to 12% (CI: 8.1% - 15.9) among those not hospitalized. In the RRSH group, hand pain among recently hospitalised patients showed a frequency of 1.3% (CI: 0.5% - 3.1%). The frequency was higher (22.4%, CI: 15.9%-28.9%) among those without recent hospital admissions.

An investigation of the frequency of hand pain as a function of the affected limb (Figure 2) shows that BPN is a bilateral phenomenon in most cases occurring in 7.9% (CI: 4.7%-11.1%) of the UCH sample and 10.9% (CI: 6.0% - 15.8%) of the RRSH sample. This was followed by the left hand in the UCH sample (2.6%; CI: 0;7%-4.5%) and the right hand in the RRSH group (8.3%; CI: 5.0%-11.6%).

Table 3 Frequency of symptoms (severity in BPN)

Frequency of pain per week	Severity	UCH	RRSH	UCH+RRSH
<once	mild	10	7	17
once		5	11	16
occasional		1	0	1
not sure		2	1	3
twice	moderate	5	6	11
thrice	severe	1	3	4
>thrice		10	8	18
Total		34	36	70

X^2, p=0.497 df = 12

When symptomatic individuals were asked how often they were woken up by hand pain, a measure of its severity (Table 3), majority of patients (52.9%) woke up infrequently or not at all, meaning that their symptoms were milk. About a third of symptomatic patients suffered severe symptoms, waking up thrice a week or more. Those that woke up with nocturnal hand pain twice a week (moderate severity) formed about 16% of patients with BPN. DeKrom et al (1992)[1] used a twice-nightly occurrence of BPN as the exclusion criterion for their study.

How did BPN sufferers attempt to get relief from the condition? Most patients (50.3%) either poured warm or cold water on their hands. Others rubbed their hands together (21.1%), while still others shook the affected hand(s) vigorously (16.9%). Similar proportions of cases either combined all of the above methods or ignored the pain, while very few affected people (2.8%) used analgesics.

About 1 in 5 affected respondents (19.7%) complained about their hand symptoms to a physician. In none of these was the carpal tunnel syndrome diagnosed. Most of them (78.6%) had their symptoms unexplained to them. They were simply reassured. On the other hand, three patients (21.4%) were told that their symptoms were due to hypertension.

When probed for the presence of diseases, which are known to be associated with the carpal tunnel syndrome (CTS), less than one-quarter of symptomatic patients (15.5%) acknowledged suffering from such with more than three-quarters (85.5%) saying that they did not have any such disease.

Discussion

Very little is known about the carpal tunnel syndrome in this environment. (Oyedele et al, 1998)[15]. The most important reason for studying BPN in our view is ultimately to be able to determine the frequency of the carpal tunnel syndrome (CTS) in this environment. In their work, DeKrom et al conservatively put the value of BPN as a predictor of CTS to be 38% for the general population[1]. From their own work, Atroshi et al (1999)[12] put this value at 20%. If we apply these figures to this study, then between 84 and 160 of our 422 interviewees will develop carpal tunnel syndrome. Further investigations in this regard might be to perform nerve conduction or other confirmatory diagnostic tests on patients with BPN.

There was a basic difference in the age-sex distribution of respondents at the two locations used for this study (UCH and RRSH) (Figures 1a and 1b). This fact is useful in the that carpal tunnel syndrome (CTS) is highly associated with middle age (Entin, 1968[9]; Armstrong and Chaffin, 1979[6]; More, 1992[10]). Thus the distribution of CTS in the two groups may be influenced by this difference.

The BPN frequency in this study is comparable to those described previously[1,12], with a tendency to be higher. Reflecting sex differences, one worker found a male to female frequency of 0.6%: 5.8%[1], indicating a female preponderance. Our findings show that BPN is a disorder of young females and middle-aged males in the UCH group but a disorder of older females in the RRSH group. Most of the previously published work however favours BPN preponderance in older females [1,6,9,10,16,17,18].

Concerning the role of occupation in BPN distribution, the fact that the light hand-users dominated both of our study groups calls into question the premise that heavy hand use is prevalent in this environment. A predominant light use of hands is supported by a previous study of one population (Dekrome et al 1990)[2]. Another group of workers (Konz and Mital, 1990)[19] observed that CTS (and thus BPN) is mostly not related to patients' occupation.

Given that recent hospitalization of respondents may be indicative of their general health status, it is striking that despite BPN, the majority of affected interviewees were not hospitalized. This may indicate that BPN is not a prominent cause of hospital attendance and admission in Ibadan. The significant difference in the RRSH group between sufferers who were admitted in hospital and those not admitted may point to the tendency of RRSH, being a secondary health care center, to attract patients suffering from a wode variety of illnesses unrelated to BPN, and requiring hospital admission.

The hand morbidity pattern clearly shows that in both groups, bimanual involvement was more common than single hand involvement. This agrees with a previous work[1] where both hands were affected in almost 70% of the sample.

The preponderance of the mild severity of BPN in this study has two main implications. First, it will tend to keep reporting of the ailment low and secondly, it will remain an unfamiliar terrain for health care givers, a point emphasized presently. On the other hand, all the patients that were woken up most frequently had bilateral disease. This is to be expected as, the more discomfort they feel, the more frequently they will tend to wake up at night.

Our observations as to how patients sought relief from BPN agree with previous findings, where relief from the hand symptoms was found to be by "hanging, shaking, massaging, or exercising the hand" (Entin, 1968, Feldcamp et al 1995)[9,20]. The use of water to obtain relief from ailments may be associated with the local belief, customs and religion of the people. Given the famed predisposition to self-medication in our environment, it is surprising that not more than 15% of our series used this method to relieve their symptoms.

The diagnoses made by the attending physicians to the patients with BPN may reflect a poor physician awareness, and low index of suspicion to the modes of presentation of BPN and carpal tunnel syndrome (CTS) was made, the patient was not aware of it, reflecting a poor level of doctor-patient communication. This inference is further strengthened by the fact that BPN symptoms were unexplained to the patient in the vast majority of cases who presented in hospital.

The fact that the majority of respondents did not have medical conditions, which are known to be associated with hand pain may signify a lack of presdisposing systemic or local diseases to BPN in this environment. While this points to the need for further studies,

it may also show the need to give priority to the study of occupational factors as a cause of BPN and CTS in the south-west area of Nigeria.

Conclusion

The symptoms of median neuropathy appear to be more prevalence in this environment than we have hitherto recognized. They may be higher in some subsets of our population than previously described in other countries. In spite of this, knowledge about the disease, and attitude to it remains vague. People who suffer from this condition will continue to endure it, perhaps unjustifiably so unless physicians are sensitized to recognizing its symptoms and signs. Further research will be needed to define the distribution of BPN more accurately, particularly in persons at risk.

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Prevalence of cardiovascular risk factors in an African, urban inner city community

*T. O. Lawoyin, M.C. Asuzu, J. Kaufman[1], C. Rotimi[1], E. Owoaje, L. Johnson and R. Cooper[1]
Department of Community Medicine, College of Medicine, University College Hospital, Ibadan, Nigeria.
Department of Preventive Medicine and Epidemiology[1], Loyola University Medical School, Maywood, Chicago, USA.

Summary

With the epidemiological *transition* phenomenon, more countries are expected to move from a disease pattern dominated by infectious diseases to one characterised by non-communicable diseases. Many developing countries are contending with infectious diseases as well as non-communicable diseases, yet little is known about the prevalence of cardiovascular risk factors in poor urban communities in developing countries.

The objective of this community based study was to determine the prevalence of selected cardiovascular risk factors in an urban inner city community which had been followed up prospectively from 1993 to 1998.

Results show that the prevalence of hypertension (Blood Pressure BP >160/95 mm Hg) was 12.4 percent with an age-adjusted rate of 7.4 percent. This is higher than what is found in the rural parts of the country but much lower than what is generally *observed in* industrialized countries of the world.

Though there was no significant difference in the proportion with hypertension by gender (P>0.05), the mean systolic BP was significantly higher for men (123.9 ± 23.9) mm Hg) than for women (120.6 ± 26.8 mg Hg) t = 2.93, p<0.01. The mean diastolic BP was similarly higher for men (75.8 ± 14.9) mm Hg than women (74.0 ± 14.9) mm Hg t = 2.76 p <0.01). Eight percent of the study population were obese (BMI>30), and generally, more women than men were obese. However, at ages 15-19 significantly more males than females were obese (X^2 = 7.3, p <0.01). *Both mean systolic* and diastolic BP increased with increasing weight. When adjusting for gender, the association between hypertension and other CVD risk factors remained similar for males and females and gender was not a modifier of the factors. Of the CVD risk factors studied, Age >40 years and obesity, were significantly associated with the presence of hypertension in this community (P<0.0001 and P <0.0001), smoking, alcohol intake and gender were not (P>0.05).

It is necessary to implement a national plan for the control of cardiovascular diseases in order to reduce and keep to minimum cardiovascular diseases and its *complications in* the country.

Keywords: ***Hypertension, Risk factors, Cardiovascular disease, community-based.***

Résumé

Avec le courant de l'opinion publique à l'égard du phénomène portant sur la transition épidémiologique, on entend que la plupart de pays tendents à s'écarter d'une ambiance en proie de la maladie à travers des maladies contagieuses vers celle typiquement sans des maladies communicables; néanmoins, on ne sait pas grand-chose à l'égard de la fréquence des données de risques sur le cardiovasculaire dans les agglomérations urbaines dans les pays en voie de développement.

L'objet de cette étude basée sur la communauté citadine était de déterminer la fréquence de quelques données de risques de cardiovasculaires dans une communauté citadine urbane étudiée prospectivement de 1993 en 1998.

Il s'ensuit que la fréquence d'hypertension (Tension artérielle, BP> 160/95mm Hg) était 12,4% avec âge moyen proportion de 7,4%. Ceci avait la fréquence élevée par rapport à ce qui se passe dans la zone rurale du pays mais encoure plus en baisse par rapport à se qui est en cours dans les pays développés du monde.

Quiqué il n'y ait pas de différence dans la proportion d'hypertension par sexe (P>0,05), le moyen systolic, BP était manifestement élevé chez les hommes (123, 9 ± 23,9 mm Hg) plus que chez les femmes (120,6 ± 26,8mm Hg) t =2,93, P<01. Le moyen diastolic BP était également plus élevé chez les hommes (75,8 ± 14,9 mm Hg) plus que chez les femmes (74,0 ± 14.9)mm Hg, t = 2,76 P <0,01) Huit pourcentage de population des gens études étaient obèses (BMI >30), en général, les femmes sont plus obèses que les hommes.

Pourtant, les hommes âgés entre 15 et 19 ans sont obèses plus que les filles (X^2 = 7,3 P <0,01). Les deux moyens systolic et diatolic BP augmentent avec l'accroissement du poids. À l'égard du sexe, l'association de l'hypertension par rapport aux autres donées des risques CVD reste toujours similair pour les deux, les mâles ainsi que les females et le sexe n'a pas une influence sur ces facteurs. Des cas de CVD données des risques études, âgés >40 ans et l'obésité sont manifestement liés avec l'existence de l'hypertension dans cette communauté (P<0,0001 et P<0,0001) l'habitude de fumen et alcoolisme et le sexe n'étaient pas (P>0.05).

Il est nécessaire de mettre en oeuvre une politique naitonale sur la lutte contre les maladies cardio-vasculaires afin d'abaisser et de tenir au minimal et au échec les cas des maladies cardio-vasculaire et ses complications dans le pays.

Introduction

In the developing regions of the world where four fifths of the world's population reside, non-communicable diseases are replacing the traditional enemies such as infection as the leading cause of disability and premature death in adults[1]. By the year 2020, non-communicable diseases are also expected to account for seventy percent of deaths in the developing reigon[1].

With the epidemiological transition phenomenon more countries are expected to move from a disease pattern dominated by infectious diseases to one characterized by non-communicable disease[2].

Population pressure, poverty and infection have notably been found to affect many developing nations for generations but an increasing number of studies suggest than non-communicable diseases will soon be the most important cause of morbidity and mortality in these places[3-6]. The reasons given for this were several and include a changing demographic profile of sub-Saharan Africa, environmental, economic and population ageing patterns. Nigeria for example, has moved from being a young population (with proportion of the aged, 65 years and above, less than 3 percent) to a mature population (with the proportion of aged between 4 and 7 percent)[7,8]. In addition, the oil glut of the 1980's and the fall in GNP per capita to its current low level of $250 have played no small role in contributing to the level of poverty seen in the country. Challenges due to the poor infra structure and level of amenities have been inadequately dealt with. These with increasing Westernization and modification of lifestyle patterns appear to increase the risks for developing cardiovascular diseases in Nigeria. While high risk factors were said to be prevalent among the affluent in most developed countries, observations are beginning to show that cardio-vascular risks are present even among the poor [9-14].

**Correspondence*

There is little known and reported about the level of risk factors in Nigeria particularly in poor urban communities. The aim of this study therefore was to assess cardiovascular disease (CVD) risk factors in an urban inner city population in Ibadan, Nigeria and to estimate the prevalence of these risk factors. This will also serve as a baseline for assessment of future trends in the risk factors studied in both affluent and poor communities in this country.

Materials and methods

The study area, Idikan is located in the indigenous part of the city of Ibadan, Nigeria. Total population of Idikan is 7,883. The study population includes adults 15 years and above who were resident in the community from 1993 till 1998 when the study was carried out. All residents were enrolled for the purpose of this study based on initial census of study population carried out in 1993 and updated every 4 months. A sub-set of eligible adults (about half the study population) were recruited, interviewed and examined. When necessary, repeat visits were make in order to sight members (usually the men) of the household who were absent at first visit.

Socio-demographic data, self reported alcohol and smoking habits were obtained through standardized questionnaire administered by trained interviewers. Data were also obtained from blood pressure measurements. Blood pressure was measured using a digital electronic monitor (OMRAN) and measured with the procedures of the standardized ICSHIB protocol[14,15]. The average of 3 measurements was sued to assess the presence or absence of hypertension according to WHO criteria (Systolic BP $\geq$ 160 mm Hg or Diastolic BP $\geq$ 95 mm Hg). Those whose BP fell within the hypertensive range were referred to the Idikan ambulatory clinic for confirmation of hypertension diagnosis and free anti hypertensive treatment. Body Mass index W/H^2)>30 was used as an indicator of obesity. Height was determined in meters using a stadiometer. Weight was measured with a potable digital scale. This instrument was checked daily for accuracy using objects of known weights. Current smokers were those who admitted to have smoked regularly for at least 1 year prior to and during the week of the interview. Age adjustment method was based on direct standardization using the Nigerian population. The data was entered into the computer using EPI INFO version 6. Appropriate statistical tests were performed to determine significant levels.

Results

A total of 2,144 persons who were 15 years and above in the study population were examined. Of this number 892 (41.6%) were males while 1,252 (58.4%) were females. Table 1 shows the number of persons examined by age and gender.

Age and gender

Table 1 Distribution by age and gender of examined persons

Gender	Age groups in years						
	15-19	20-29	30-39	40-49	50-59	60+	Total
Males	290	137	89	89	110	177	892
	(32.5)	(15.5)	(10)	(10)	(12.3)	(12.3)	(41.6)
Females	267	240	186	227	157	175	1252
	(21.3)	(19.2)	(14.9)	(18.1)	(18.1)	(12.5)	(58.4)
Total	557	377	275	316	267	352	2144
	(26)	(17.6)	(12.8)	(14.7)	(12.5)	(16.4)	(100)

(Percentages in parentheses)

A total of 267(12.4%) were found to be hypertensive, comprising 108 (12.1%) males and 159(12.7%) females. Age-adjusted prevalence rate for hypertension in the community was 7.4%. Though there was no significant difference in the proportion with hypertension by gender (P>0.05) the mean systolic BP was significantly higher for man (123.9 ± 23.9 mm Hg) than for women (120.6 ± 26.8 mm Hg) t = 293, P .001. The mean diastolic blood pressure was similarly higher for men (75.8 ± 14.9 mm Hg) than women (74.0 ± 14.9 mm Hg) t = 2.76, p,0.01.

Table 2 Prevalence (Percent) of CVD risk factors by age group and gender

Age group (Years)	Gender	Hypertension	Obesity	Smoking
15-19	Male (290)[1]	0.9	5.9[2]	0.0
(557)	Female (267)	0.6	1.4	0.0
	Total	0.89		
20-29	Male (137)	4.6	11.8	13.0
(377)	Female (240)	3.2	13.0	0.0
	Total	3.7		
30-39	Male (89)	7.4	14.7	22.2
(275)	Female (186)	7.6	20.3	0.0
	Total	7.6		
40-49	Male (89)	20.2	20.6	18.5
(316)	Female (227)	26.6	30.4	0.0
	Total	24.7		
50-59	Male (110)	26.9	23.5	14.8
(267)	Female (157)	22.2	15.9	0.0
	Total	24.3		
60 & above	Male (177)	43.5	23.5	31.5
(352)	Female (175)	39.9	18.8	0.0
	Total	41.8		
Total	Male (892)	12.1	3.8[3]	6.1
	Female 1252	12.7	11.0	0.0
	Total (2144)	12.4		

1 - Sample size in brackets 2 - p< 0.01 3 - P<0.00001

Table 3 Systolic and diastolic blood pressure with weight

Blood pressure (BP)	Normal Weight BMI<27	Overweight 27<BMI<30	Obese BMI>30	Anova
Mean systolic BP mm Hg (SD)	120.8 (25.2)	132.0 (25.7)	131.3 (27.7)	F=19.61 p<0.0001
Mean Diastolic BP mm Hg (SD)	74.2 (14.5)	83.1 (13.5)	83.6 (16.5)	F=43.4, p<0.0001

SD - Standard deviation

Sex difference in the distribution of BP were found to be age related and values tended to be lower for women at all ages except 30 – 49 years. Table 2 shows the prevalence of CVD risk factors by age group and gender.

Table 4 Prevalence of hypertension according to other CVD risk factors

Risk factor	Prevalence %	X^2	P value
Age<40 years	2.6	240.94	0.00001
Age>40 years	25.0		
Obesity	25.6	28.45	0.00001
Non Obesity	11.3		
Smoking	18.5	1.61	0.203
Non Smoking	12.3		
Gender Male	12.1	0.18	0.675
Female	12.7		
Alcohol	17.6	2.89	0.088
Non Alcohol	12.1		

Table 5 Prevalence of hypertension according to other CVD risk factors adjusted for gender

Risk factors	Males		Females	
	Prevalence %	P.value	Prevalence %	P.value
Age<40 years	2.7		2.6	
Age>40 years	25	<0.0001	25	<0.0001
Obesity	26.5		25.4	
Non Obesity	11.5	0.018	11.1	<0.0001
Smoking	18.5	0.1997	0.0	-
Non Smoking	11.7		12.7	-
Alcohol	17.8	0.043	0.0	-
Non alcohol	11.1		12.7	

Obesity

One hundred and seventy one (8.0%) persons were obese with BMI>30 in the study population. Significantly more females in the study population 1252 (11%) than males 892 (2.8%) were obese, (X^2 = 36.7 P<0.0001). There were however, significantly more obese teenage males than females (X^2 = 7.3, P<0.01) and more obese males after the age of 50 years, though the difference was not significant (p>0.05). Obesity increased in men with increase in age while in women, obesity increased up till age 50-49 years after which the proportion of obese women was observed to reduce. Both the mean systolic and diastolic blood pressures increased with increasing weight (Table 3). In the study population, hypertension was significantly higher in persons over 40 years and in the obese. Prevalence of hypertension was higher in smokers than non-smokers. The difference was not significant due to small numbers. Too few females smoked in the community to contribute significantly to the rates (Table 4). When adjusting for gender, the association between hypertension and other CVD risk factors remained similar for males and females and gender was not found to be a modifier of any of the factors studied. (Table 5).

Discussion

Hypertension is commonly defined as sustained elevated arterial blood pressure, measured indirectly by an inflatable cuff and pressure manometer. It is the most common cardiovascular disorder in sub-Saharan Africa, and it is of public health importance. Hypertension is a strong and independent risk factor for coronary heart disease and stroke[14]. While deaths ascribed to hypertensive heart disease have diminished over recent decades in industrialized countries, not much can be said about the impact of hypertension on mortality in Nigeria[15-17]. Few studies which have attempted to evaluate the mortality risk associated with hypertension and bridge the gap in knowledge in sub-Saharan Africa have identified the primary sequel of hypertension as stroke with minor contributions from heart and kidney failure, and that the relative risk of hypertension was as large as that seen in studies from other parts of the world[11,18-21]. The data presented shows that the prevalence of hypertension is higher than the 9.3% and 9.8% which have been reported for rural Nigeria and 11.2%, the overall crude prevalence for Nigeria[12-14].

In addition, hospital based and screening studies in the adult general population suggest that hypertension rates are much higher in males[22]. Others suggest that the prevalence is higher in females particularly in sub Saharan African[23,24]. From this study, there was no gender difference in prevalence rates. Studies have also shown a strong association between obesity and hypertension and this was clearly demonstrated in this study[25,26]. Proportions of those with hypertension increased with increasing weight. Nigerians need to be aware of this so that they can control for obesity. Unfortunately, the prevalence of obesity has received little attention from many nutritional studies and relevant studies have been found to be limited. This may be due to the fact that inadequate energy intake and malnutrition are commoner in sub-Saharan Africa. Much higher obesity rates (18.3 percent) for men and (35.7 percent) for women were reported for Nigeria in the 1970's. Taking into account that this is a poor community, the wide difference in obesity rates in the last two decades is probably a reflection of better socio-economic climate in the past when compared to what is generally observed now[25].

Apart from being a risk factor for cardiovascular diseases, smoking is also a major factor in a large number of chronic disorders. having significant mortality and morbidity impact. Smoking is said to be on the decrease in many developed countries and the reverse is noted to be true in many parts of sub Saharan Africa. Prevalence of smoking was highest in the older men 60 years and above in the study. These men also had the highest risk for obesity and hypertension. Smoking was negligible among the females at all ages. It is needful to pay more attention to the older men as this may improve survival rates in the community.

This study shows that inner city dwellers in Ibadan, Nigeria have similar CVD risk profile as found in developed countries. The crude prevalence of hypertension of 12.4 percent is slightly higher than the national average (11.2%) and rates found in rural Nigeria but still much lower than what is generally found in industrialised countries of the world[11,12]. It is necessary to implement a National Plan of prevention and health promotion in order to reduce and keep to minimum cardiovascular diseases as the country continues in the process of development.

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Caesarean section and birth weight at Korle Bu Teaching Hospital – preliminary report

J. D. Seffah
Department of Obstetrics and Gynaecology, University of Ghana Medical School, P. O. Box 4236, Accra, Ghana.

Summary
Objective: **This preliminary retrospective survey was done to find out whether the indications for Caesarean Section had any bearing on the birth weight.**
Method: **The foetal outcome for 673 parturients who delivered at the Korle Bu Teaching Hospital between September 1, 1998 and December 31, 1998 was analysed.**
Result: **Caesarean section done for cephalopelvic disproportion and for 2 or more previous sections yielded the highest mean birth weight (3.43kg ± 0.02kg) and the best foetal outcome. Hypertensive disorders yielded the lowest mean birth weight (1.8kg ± 0.3 kg) and poorest foetal outcome. The mean parity and age of the parturients were similarly distributed.**
Conclusion**: The birth weights appeared to vary with the indications for Caesarean section. Confounding factors such as the gestational age, parity and age of the parturients need to be controlled in a prospective study in future. Good antenatal supervision could improve on the birth weights.**

Keywords: ***Caesarean section, Birth weight, Korle-Bu.***

Résumé
Objectif Ce sondage rétrospectif et préliminaire a été fait pour vérifier si les indications de césarienne avait un rapport sur le poids de naissance.
Methode Le résultat foetal pour 673 parturients qui ont donné naissance à Korle-Bu- Teaching Hospital entre le 1 septembre 1998 et le 31 decembre 1998 a été analysé.
Resultat La césarienne faite pour la disproportion de cephalopelvien et pour deux ou plus d'opérations précédentes ont produit le moyen de poids de naissance le plus haut (3.43kg ± 0.2kg) et le meilleur résultat foetal.
Les déordres hypertensifs ont produit le moyen de poids de naissance les moins bas (1.8 kg ± 0.3kg) et le résultat foetal le plus pauvre. Les moyens d'égailité et d'âge des parturients ont été également distribués.
Conclusion Les poids de naissance semblent varier avec les indications pour la césarienne.
Les facteurs consternés comme l'âge des parturients doivent etre controlé dans un sondage dons l'avenir.
La bonne surveillance prénatale pourrait ameliorer les poids de naissance.

Introduction

The birth weight is one of the important documentations the accoucheur makes as soon as the baby is born. It determines whether a baby needs special care. Above the 90th percentile, birth injuries do occur. Below the 10th percentile, respiratory distress and intraventricular haemorrhage do occur[1].

Early research on birth weight was geared towards influencing the size of the newborn and facilitating delivery: and preventing maternal obesity after delivery[2]. The three major anthropometric components associated with pregnancy outcome – maternal height, pregravid weight and gestational weight gain, represent a combination of genetic and environmental factors that influence the birth weight. Other factors such as intercurrent diseases and the indication and timing of interventions are also important determinants[2].

The specific objective of the study was to find our whether the various indications for ceasarean delivery had any influence on the birth weight.

Methodology

The study was a retrospective survey done at the Korle Bu Teaching Hospital between September 1, 1998 and December 31, 1998. This hospital is a tertiary referral centre which has an annual delivery rate of 12,000. It serves a population of approximately three million inhabitants and it is situated in the capital city, Accra. Normal deliveries are carried out by the midwives and medical students. These are supervised by senior doctors including some fourteen obstetricians. Six hundred and seventy-three (673) caesarean deliveries and 2,737 vaginal deliveries were done during the period of study.

Labour was monitored by using the W.H.O. partograph. The adequacy of the pelvis was determined clinically.

The diagnosis of cephalopelvic disproportion (C.P.D.) was suspected in a patient whose height was less than 1.5m or whose symphysio-fundal height was more than 40 cm or whose foetus weighed about 4kg by ultrasound examination. The diagnosis was confirmed in labour when there was failure to progress despite adequate uterine contractions (more than 3 contractions in 10 minutes each lasting more than 45 seconds). Excessive moulding and caput formation strengthened the diagnosis.

The diagnosis of foetal distress was made from the persistence of irregular foetal heart rate even after the parturient had been resuscitated with 0_2 per mask, normal-saline infusions, turning to the left lateral position as well as stopping any oxytocin drip. Passage of fresh meconium strengthened the diagnosis.

The diagnosis of placenta praevia was made on clinical grounds and confirmed by ultrasonography or examination at theatre.

The data sources were the labour ward and theatre records and the post natal notes.

The age and parity of the parturients, the gestational ages by date and by ultrasound scan, as well as the Apgar scores, the weight and sex of the new born were recorded at the labour wards and operative theatres. The indication for each caesarean section was listed against the maternal demographic characteristics. Babies who weighed more than 4kg or less than 2.5kg and those who appeared sick after resuscitation were admitted to the Neonatal Intensive Care Unit. The gestational age was here estimated again by using the Dubowitz criteria of neuro-developmental assessment[3]. Excluded from the study were 23 parturients whose gestations were either less than 28 weeks because they were classified as abortions by this hospital, or had delivered before arriving at the hospital with complications of the third or fourth stage of labour.

Statistics

The EPI INFO software, ver 6.04 was used to analyse the data $p<0.05$ was taken as significant.

Correspondence

Results

From table 1, the mean age, parity and weight of the parturients who had caesarean section were 29.7yr. 1.8 and 3.17kg respectively. From (Table 2), the highest mean age (33.6 yr) was recorded among those who were diagnosed with C.P.D., while hypertensive diseases accounted for the lowest mean age of 26.1 yr. The highest average parity occurred among those who had had 2 or more caesarean sections.

Table 1 Caesarean deliveries

	Mean Age of Parturient (Yrs)	Mean Parity	Mean weight of Baby kg	Male/ Female ratio	Still Birth rate per 1000 births
Total caesarean Section N = 650	29.7±2.1	1.8±0.4	3.17±1.1	1.2:1	57

In the study population the average birth weight was highest among those diagnosed as (cephalopelvic disproportion) C.P.D. (3.43kg) and the lowest occurred among those who presented hypertensive diseases (1.8 kg). The birth weight reflected on the indication for caesarean section as well as the parity/ and the age of the woman. Table 2.

Cephalopelvic disproportion was found in 192 cases in labour. The average birth weight was 3.4kg. The rest of 11 cases who had had a previous caesarean section, had an elective section at term for 'big babies'. The mean weight was 3.42kg which was not significantly different (p>0.05)

The parturients who had had 2 or more caesarean sections had elective delivery at 38 weeks (n=30) or had an emergency section in labour (n-24). The mean weight of the elective group was 3kg and that for the second group was 3.1kg. There was no significant difference. The mean weight for both groups was 3.02kg (Table 2).

Elective caesarean section was done for breech presentation in primigravida in 12 cases. The other breech presentations had failed to progress in labour (n=24). The mean birth weight of the former group was 2.8kg while the latter was 3.1kg and the difference was significant (P<0.05). Also the mean birth weight for all breech deliveries from caesarean section was 3.0kg (Table 2).

Foetal distress diagnosed with the aid of the Pinnard stethoscope or the cardiotocograph, was noticed in labour in 66 cases and in 14 cases of premature rupture of membranes. The average gestational age was 35 weeks; with 27% of the cases presenting at term. The mean weight was 3.1kg (Table 2).

Sixty-four (80%) of the cases of placenta praevia were delivered at term, (48 cases) 60% electively and (16 cases) 20% in labour. The rest of 16 cases were delivered preterm because of profuse bleeding. All the deliveries were done abdominally. The mean weight was 2.9kg. (Table 2). The diagnosis in most cases had been confirmed by ultrasound examination.

The 83 cases of P.I.H. and eclampsia presented in the second half of pregnancy. Forty-seven 55% were below 34 weeks and only (Twenty-six cases) 30% were at term. This group had the lowest hirth weight (1.8kg). *Abruptio placentae* presented with extreme prematurity (<32 wks) in fifty-nine (70%) of the cases. Term pregnancies accounted for only (twelve cases) 15%. The mean birth weight was second lowest (1.9kg).

The still birth rate was highest in emergency caesarian sections done for hypertensive diseases and *abruptio placentae* both of which were associated with severe prematurity. (Table 2)

While more males were born after C.P.D., delivery after presentation breech and *abruptio placentae* yielded more females (Table 2).

Discussion

The birth weight is ultimately the best measure of the quality of pregnancy[4]. In this study, however, the differences in the mean birth weight at Caesarean section reflected on the indications for intervention. (Table 2) Therefore the reasons for the interventions depicted the quality of care[5,6] at the hospital.

This preliminary study did not control for important confounding factors such as the gestational age at delivery, and a prospective study covering a whole year is being designed to cater for the confounding factors as well as any seasonal variation in the population of parturients.

The obstetric outcome of the parturients operated on for previous history of 2 or more caesarean sections, foetal distress, breech presentation and, placenta praevia was expected to be satisfactory judging from their mean birth weights of more than 2.0kg (Table 2). However, in hypertensive disorders and abruptio placenta, where the mean birth weights were less than 2.0 kg the outcome was poor (Table 2). This is in agreement with earlier authors who noted similar poor foetal outcome[7].

Caesarean sections were performed mostly by the resident doctors after consulting the specialists. An audit was done the following day by the whole department. The threshold for caesarean section after a previous one was too low judging by the mean weight of the babies (3.42kg) delivered electively.

The diagnosis of foetal distress needed to be refined with the study of the scalp PH and PO_2 before delivery as well as the cord PH, PO_2 and base-deficit after delivery but logistic constraints prevented this study.

The overall stillbirth rate of 57/1000 births (Table 1) was comparable to that obtained in a study done by Anyebuno[8] at Korle Bu. However the stillbirth rate of 190/1000 births after caesarean section for abruptio placenta was too high (Table 2) and would warrant further studies in future.

Improvement in birth weight and therefore foetal outcome in our environment would require better antenatal surveillance and prompt identification and treatment of the high risk groups. Prompt treatment of PIH with antihypertensives and, the administration of prophylactic low dose aspirin may be useful for parturients at

Table 2 Indications for caesarean deliveries and their outcome

Indication	Mean age (Yrs)	Mean Parity	Mean Weight (Kg)	Male to Female ratio	Still birth rate /1000 Births
Abruptio placenta N=84	28 ± 2.1	2 ± 0.9	1.91±0.4	0.44:1	190
Placenta praevia N=80	27.1±1.9	1.72±0.4	2.9±0.3	1.33:1	30
Cephalopelvic disproportion N = 203	33.6±2.9	1.24±0.6	3.43±0.2	3.6:1	9
2 or more previous caesarean section N=54	31 ± 3.1	2.35±0.5	3.02±0.4	1.3:1	37
Foetal distress N=80	24.5±3.1	1.1±02	3.1±0.3	1.1:1	63
Breech N = 36	32.6±2.8	2.1±0.1	3.0±0.1	0.38:1	0
P.I.H./Eclampsia N=83	26.1±1.7	1.4±0.3	1.82±0.3	1.2:1	84
Other indications e.g. N = 30 cord prolapse	31 ± 3.0	2.2 ±0.3	3.2±0.2	1:1	64

risk of developing P.I.H.[9]. With the advent of ultrasonography, the diagnosis of placenta praevia could be improved further. Expectant management in line with MacCafee[10] et al would improve upon the gestational age and birth weight before a caesarean section is done. Early ultrasound examination again would facilitate the correct dating for elective deliveries, to prevent the delivery of preterm babies with small weights.

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Serum Hepatitis C virus and hepatitis B surface antigenaemia in Nigerian patients with acute Icteric hepatitis

***S. O. Ola, J. A. Otegbayo, G. N. Odaibo, O. D. Olaleye and O. I. Olubuyide**
Department of Medicine and Department of Virology,*
College of Medicine, University College Hospital,
Ibadan, Nigeria.

Summary

Acute hepatitis is common in Nigeria and hepatitis B virus (HBV) infection has been a major aetiological factor. However, the role of Hepatitis C Virus (HCV) infection is yet undetermined. Forty-five consecutive Nigerian patients with Acute Icteric hepatitis (AIH) attending the Medical Clinic of the University College Hospital, Ibadan, Nigeria and 45 healthy adult Nigerians (controls) were studied for evidence of infection with both viruses. Questionnaire on risk procedures which predispose to acquisition of both HBV and HCV infections were administered to the patients. Blood samples were collected from all the subjects and tested for antibody to HCV (Anti-HCV) and Hepatitis B surface Antigen (HBsAg) using the second generation Enzyme Linked Immunoassay (Monolisa –R, Sansofi, Pasteur; France). Anti-HCV was detected in 21(47%) and 17(38%) of the patients and controls respectively. The corresponding prevalences of HBsAg were 38(84%) and 11(24%), p<0.001. Hepatitis B virus infection was found to occur more than HCV infection in the patients with AIH but similar among the controls. Combined HBV and HCV infection occurred more frequently among the patients (42.1%) than in the control (11%) (;<0.001). Although there was no significant difference in the HCV infection between the two groups, isolated HCV infection is commoner in the control than in the patients with AIH, (p<0.001). Similarly, single HCV infection is commoner than lone HBV infection among the control, p<0.05. In summary, this study shows that while both HBV and HCV infections are common in Nigeria, AIH may be more associated with HBV than HCV in the country.

Key words: ***Hepatitis B and C viruses, Anti-HCV, Hepatitis B Surface Antigen, Acute Icteric hepatitis, Nigeria.***

Résumé

La fréquence de l'hépatite aigue est notée au Nigéria, et l'infection du virus Hépatite B(VBH) reste toujous menaçant comme la trait étiologique principal. Cependant, on n'arrive pas à délimiter le rôle que joue l'infection du virus Hépatite C (VCH).

Quarante cinq malades consecutives Nigérians avec leteric Hépatite aigue (AIH) se sont présentés à la Clinique Médicale de Collège Hospitalièr Universitaire d'Ibadan au nigéria, d'autre part, on avait étudié 45 adultes nigérians bien portant, (comme cas de témoins) comme signe de l'infection des deux virus. Questionnaire sur les dispositions des risques qui précèdes l'attaque d'infections des deux VBH et VCH était donné aux malades. On avait passer par la prise de sang de tous les malades et examiné afin de signaler les anticorps par rapport au VCH (Anti-VCH) et le Hépatite B surface Antigen (Hbs Ag) avec la méthode de la deuzième génération. On avait pu dépister la enzyme lié.

Immunoassay (monolisa – R sansofi, Pasteur, France). Anti-VCH dans 21 soit 47% et 17 soit 38% chez les malades et les cas de témoins respectivement. Les fréquences correspondentes de Hbs Ag étaient 38, soit 84% et 11 soit 24%, P<0,001. On avait remarqué la fréquence de l'infection de Virus B Hépatite était plus élevée que l'infection VCH chez des malades avec AIH mais similair chez les cas de témoins.

La fréquence de la combinaison des deux infections VBH et VCH était élevée chez les malades 42,1% plus que chez le cas de témoins (11%) (P<0,001) Quoi qu'l n'y ait pas de différence remarquable dans l'infection VCH de deux groupes, on avait remarqué que quelques traits de l'infection VHS existaient normalement chez les cas de témoins plus que chez les malades avec AIH, P<0,001). De plus l'infection VHC est plus fréquente plus que 'infection VBH chez les cas de témoins, P<0,05.

En conclusion, à travers cette étude, on peut dégager que quoique les deux infections VBH et VCH soient fréquentes au Nigéria, le AIH peut- être bien lier avec le VBH plus qu' avec le VCH dans ce pays.

Introduction

Viral hepatitis is common in the tropics especially in a country like Nigeria where it accounts for a major cause of both acute and chronic liver diseases[1,2]. Acute hepatitis is the commonest cause of acute liver diseases in Nigeria where viral aetiology seems to be predominating among other causes[3]. Hepatitis B virus (HBV) infection has been documented to be the commonest cause of hepatotrophic viral agents of acute hepatitis[1,3,5,6]. However, some patients were discovered to have hepatitis due to non A non B viral agents. Among these latter groups is the Hepatitis C Virus (HCV)[1,8,9]. The HCV has been detected in both healthy adults[10-13] and patients with chronic liver diseases, [1,14-16] as well as acute hepatitis [5,7] but its role in acute hepatitis has not been elucidated in Nigerians. Hence our study on the association of HCV and HBV in Nigerian adults patients with acute icteric hepatitis and healthy adult at the University College Hospital, Ibadan, Nigeria.

Materials and method

Forty-five consecutive adult Nigerian patients with AIH (Group I) attending the University College Hospital, Ibadan, were studied. In the selection of the patients, features such as hepatitis lasting more than 6 months, jaundice with ongoing fever, ingestion of icterogenic drugs within the preceding 6 months, presence of intrahepatic space occupying lesion and dilated biliary tree detected by hepatic ultrasonography and presence of mucoid bloody diarrhoea suggestive of amoebic disease were used as exclusion criteria.

Forty-five age- and sex- matched healthy Nigerian adults without a past history suggestive of hepatitis or chronic liver disease and drawn from relations of the patients were included in the study as control (Group II).

After informed consent were obtained from the subjects, questionnaires were administered to obtain information on possible routes of acquisition of HBV and HCV infections apart from the exclusion and inclusion clinical features.

The study protocol was approved by the Joint University College Hospital/University of Ibadan Ethical Committee.

About 10ml of blood was collected from each subject and the serum from each sample was separated after centrifugation and stored at – 20°C until analysis was carried out.

Markers of HBV (HBsAg) and HCV (Anti-HCV) were analysed by Enzyme Linked Immunosorbent Assay (ELISA) using Monolisa[R], HBsAg and Anti-HCV second generation ELISA Kits, Sanofi, Pasteur; France.

**Correspondence*

The data were analysed using students-t-test, Fisher's Z-test as well as computer analysis (EPI-Info) at a significant p-value < 0.05.

Results

Two groups of subjects were studied consisting of 45 Nigerian patients with AIH (group I), 45 healthy adult Nigerians as control (group II) aged 26 ± 9 years (Mean ± Standard Deviation) each. The groups were matched for age, sex, residence, tribe and occupation (Table 1). As shown in Table 2, HBV infection was detected in 38(84%) and 11(24%) of the patients with AIH and control respectively, p<0.001. Single HBV infection occurred in 19(42%) and 6(13%) of groups I and II respectively, p<0.001. The seroprevalences of anti-HCV in groups I and II were 21(47%) and 17(38%) respectively while single HCV infection was present in 2(5%) and 12(27%) of the respective groups I and II, p<0.001. Although there was no difference in the seroprevalences of HCV between the two groups, isolated HCV infection was commoner in the control than in the patients (p<0.001). Single HBV was more frequent than single HCV infection among the patients (p<0.001), with the converse for the control (p<0.05). Combined HCV and HBV infections were detected in 19(42%) and 5(11%) of groups I and II respectively (p<0.001).

Table 1 Biodata of all subjects studied

Parameter	Subjects	
	Acute Icteric hepatitis n = 45	Control n = 45
Male/Female	24/21	24/21
Age(mean±SD) years	26±9	26±9
14-20	12	11
21-40	29	29
41-60	4	5
State of residence		
Oyo	30	29
Others	15	16
Tribe		
Yoruba	37	36
Hausa	5	5
Igbo	3	4
Occupation		
Student	24	18
Civil Servant	21	27

SD = Standard Deviation

Table 2 Prevalence of HBV and HCV in patients with AIH and controls

HBV	HCV					
	AIH			Controls		
	+ve	-ve	Total	+ve	-ve	Total
+ve	19(42)	19(42)	38(84)	5(11)	6(13)	11 (24)
-ve	2(5)	5(11)	7(16)	12(27)	22(49)	34 (76)
Total	21(47)	24(53)	45(100)	17(38)	28(62)	45(100)

Parenthesis = Percentage *HCV = Hepatitis C Virus*
HBV = Hepatitis B Virus *+ve = Positive*
AIH= Acute Icteric Hepatitis *-ve = Negative*

Table 3 Risk for AIH related to hepatitis B and C virus infections

Parameter	AIH n=45	Control n=45	Odd ratio
HBV			
Yes	38	11	16.7
No	7	34	
HCV			
Yes	21	17	1.44
No	24	28	

AIH - Acute icteric hepatitis *HBV - Hepatitis B Virus*
HCV - Hepatitis C Virus

Table 4 Probable risk factors for HBV and HCV infection in patients with acute icteric hepatitis

Route	n	HBV^{+ve}	HCV^{+ve}	HBV^{+ve} + HCV^{+ve}	HBV-ve + HCV^{-ve}
Parenteral					
Scarifications	14	4	1	8	1
Surgery	10	2	1	6	1
Needle injeciton	7	3	-	3	1
Blood Transfusion	3	3	-	-	-
Contact with					
jaundiced patients	6	2	-	4	-
History of Jaundice	3	2	-	1	-

HBV = Hepatitis B Virus *_ve = Negative*
HCV = Hepatitis C Virus *+ve = Positive*

Single HBV and combined HCV and HBV infections occurred more in patients with AIH than the control (p<0.001 each). There was no difference in the mean age of the patients and control with either HBV or HCV infection. Similarly, the infections were not related to occupation, sex, tribe and residence of the subjects. Table 3 shows that AIH was more causally related to HBV than HCV. Scarification, surgery, needle injury, blood transfusion, contact with jaundiced patients and past history of jaundice were factors associated with acquisition of HBV, HCV and both infections in the patients with AIH. These factors favour acquisition of HBV more readily than that of HCV (p<0.0005, Table 4).

Discussion

Acute hepatitis is common worldwide. A previous study showed that it accounted for 30% of all hepato-biliary diseases in Nigerian[2]. Among the various aetiological agents, HBV has accounted for 50-70% of acute viral hepatitides in Africa[1]. The finding of 84.4% among our patients with AIH is relatively higher than previous works done in Africans[1,5,7] but similar to previous report among American soldiers[3]. Similarly, the presence of HBV in 24% of our control subjects compared to 7-20% from previous reports shows a rising trend in the prevalence of the HBV infection among Nigerians. This further supports the fact that Nigeria is an endemic zone for HBV infection. However, some of our patients were seronegative for HBV infection which indicates the need for detection of other viruses or other causes of AIH.

The seroprevalence of HCV found in 47% of our patients with AIH is greater than the reports of 10%, 8% and 12% in Vietnam, Tunisia and Central Asia by Corwin et al[17], Coursaget et al[18] and Bajsakow et al[19]. The anti-HCV seroprevalence of 38% found among the control subjects in this study is also higher than previous reports in healthy populations world wide[10-13]. Inspite of the small size of the subjects used for this study, it shows that HCV infection is very common among Nigerians.

Coinfection of HCV and HBV infections has been reported and the interaction of the viruses may determine the pattern of the clinical presentation of the patients. The presence of high rate of combined HBV and HCV infections in our patients compared to the controls and the higher rate of single HCV infection in latter group might be a reflection of the natural history of HCV infection which is often mild and asymptomatic in the acute form and indolent in the course to chronicity. The HBV unlike the HCV is able to generate a higher degree of immune response in the host by its polyvalent antigens and even integrate in the host DNA[20,21]. This makes HBV infection to present symptomatically in a milieu of immuno-competence. Hence the higher prevalence of single HBV infection in AIH than the healthy subjects found in this study is not unexpected. This is further reflected by the results of this study which shows that AIH is causally related to HBV rather than HCV.

Inspite of the higher prevalence of HBV infection than that of HCV in our study, the occurrence of the peak age group of either

infection among the young adults follows previous reports and this could be secondary to high reproductive activities including sex that are associated with the age group[22].

This study has further re-affirmed that both HCV and HBV are efficiently transmitted by the parenteral route with HBV being more readily transmitted than HCV. This route is a *sine qua non* of the high sexual activities that characterise the peak age group of our study populations. Also, the similarity in the route of transmission of these viruses could justify the absence of any significant difference in the occupation, sex and residence of the subjects with either infection. The transmission of the infections could be secondary to the higher infectivity of blood, serum or body fluids associated with the route[21].

It is pertinent to note that both HCV and HBV infections era absent in 11% of our patients with AIH. This calls for detection of other viral agents (Hepatitis Non B non C viruses) which could possibly be the yet unknown or the other yet undetermined aetiological factors of AIH.

In conclusion, our study has shown that both HCV and HBV are common causes of AIH in Nigerians but HBV may be more. Infection with HBV seems to be more symptomatic than that of HCV. Both infections are parenteral in transmission though HBV is more readily transmitted. Efforts should be made at preventing these infections by active immunisation against HBV infection, ensuring safe medical care, early diagnosis and treatment of infected persons.

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Incidence and pattern of congenital dislocation of the hip in Aseer Region of Saudi Arabia

Tarek Mirdad
College of Medicine and Medical Sciences, King Khalid University and Aseer Central Hospital, Abha, Saudi Arabia
e-mail: tarekmirdad@hotmail.com

Summary

Objective

The aim of this paper is to determine the incidence, pattern, predisposing risk factors, treatment modalities and outcome of congenital dislocation of the hip (CDH) in the Aseer region of Saudi Arabia.

Methods

A retrospective study of 300 cases of CDH seen during a 4-year period between 1996 to 1999 was carried out at the Aseer Central Hospital, Abha. The relevant data examined included the details on pregnancy, birth, family history, methods of diagnosis and treatment. Data on live births for the same period was also obtained from the Directorate of Health, Aseer Region, Ministry of Health, Saudi Arabia.

Results

During the period of study, 300 children were found to have CDH with an incidence rate of 3.5/1000 live births. Only 32.4% of CDH was diagnosed in first 6 months of life. Mean age at diagnosis was 14.5 ± 19.7 months while the mean age at treatment was 44.50 ± 36.41 months. Some 235 cases (78.3%) were females (M:F ratio = 1:3.6) and 292 (97.7%) were Saudi nationals. There was a positive family history in 64 cases (21.3%). Both hip joints were involved in 151 cases (50.3%), the left hip joint 82 cases (27.3%) and the right hip joint in 67 cases (22.3%). Delivery was by spontaneous vaginal delivery in 268 cases 89.3%), caesarean section in 28 cases (9.3%) and breech delivery in 29 cases (10%). Limping and waddling gait were the most common clinical presentation seen in 166 cases (55.3%). In 22 children (7.3%), the parents were blood relatives. First born children constituted 56 out of 216 (25.9%). In the present series, 46% of the children were treated surgically, 42% were treated conservatively and 12% were treated by both. Avascular necrosis (AVN) of the femoral head following the treatment was seen in 6 children (2%).

Conclusion

Incidence rate of CDH in Aseer Central hospital and by inference in Aseer region of Saudi Arabia was found to be 3.5/1000 live births. Since the neonatal screening of CDH in this region is poor, awareness programmes, routine neonatal hip joint examination at birth and up to one year of age and plain x-ray of pelvis after the age of 3 months in high-risk babies are strongly recommended.

Keywords: *Congenital Dislocation of Hip, Aseer Region, Saudi Arabia.*

Résumé

Objectif

L'objet de cette étude est de déterminer la fréquence des tendances nettes qui ressortent des statistiques, des predispositions des facteurs de risques, les modalités de traitement et le résultat de la dislocation congénitale de la hanche (CDH) à la région d'Aser au Arabie Saudi.

Methodologie

Une étude rétrospective de 300 cas de CDH effectuée au cours d'une période de 4 ans entre 1996 et 1999 à l'Hôpital Central d'Aser, à Abha. Les données pertinentes étudiées sont les détails sur la grossesse, la naissance, l'histoire de la famille, les méthodes de la naissance, l'histoire de la famille, les méthodes de la diagnostique et le traitement. Les données sur les enfants nés vivant pendant la même période ont été notées auprès de la Direction de la Santé, La Région Aser, Ministère de la Santé, Arabie Saudi.

Resultats

Pendant la période de cette étude, 300 enfants ont été découverts atteints de CDH avec le taux de l'incidence de 3, 5 / 100 enfants nés vivant. Seulement 32, 4 % de CDH ont été diagnostiqués pendant le premier 6 mois de vie. L'âge moyen au moment du diagnostic était 14,5 ± 19,7 mois tandis que l'âge moyen au cours du traitement était 44,50 + 36, 41 mois. 235 cas soit 78, 3% étaient femmes (dans la proportion de M .F = 1.3,6) et 292 soit 97,7 % étaient ressortissant du Saudi. L'histoire de la famille était positive dans 64 cas soit (21,3%) Les deux articulations de la hanche étaient impiauées dans 151 cas soit 50,3%.

L'articulation de la hanche gauche dans 82 cas soit 27,3% et l'articulation de la hanche droite dans 67 cas soit (22,3%). Accouchement était à travers accouchement volontaire par le viginal dans 268 cas soit 89,3%, la section césarienne dans 28 cas soit 9,3% et l'accouchement par le siège dans 29 cas soit 10%. Passer en boitant et les pas mal assurés étaient les présentations cliniques les plus fréquentes vus dans 166 cas soit 55,3%. Chez les cas de 22 enfants soit 7,3%, les parents étaient parents par le sang. Premier né enfants ont constitué 56 sur 216 soit 25,9%. Dans les séries qui nous occupent, 46 des enfants ont été traités à travers la chirurgie, 42% ont été, de facon classique, traités et 12% ont été traités à travers les deux méthodes. A la suite du traitement, on avait noté la Nécrose avasculaire (AVN) de la tête fémorale chez 6 enfants soit 2%.

Conclusion

Le taux de CDH a l'Hôpital Central d'Aseer et par déduction, à la région d'Aseer à l'Arabie Saudi était noté d'être 3,5/1000 enfants nés vivant. Etant donné que la méthode du dépistage néonatale de CDH est très mauvaise dans cette région, l'examen de routine néonatal de l'articulation de la hanche pendant la naissance, et l'examen radiographique simple du pelvis à l'âge d'un an et après l'âge de trois mois chez les bébés à haut risque, ont été fortement recommandés.

Introduction

In congenital dislocation of the hip there is an abnormal development of the hip and the femoral head does not fit normally in its socket (the acetabulum). The head can easily come out (dislocatable). It can be completely out of the socket (dislocated) or partially out (subluxated). Because hip dislocations are not truly congenital in origin, the term developmental dislocation of the hip (DDH) rather than congenital dislocation is increasingly used.[1] Typical CDH occuring in neurologically normal children is the most common form.

Early diagnosis of CDH in newborns with early initiation of treatment is important to avoid the severe disability that results

Correspondence

from late diagnosis. Avascular necrosis is a complication of treatment of CDH specially when started at an older age. [2-4] Late sequelae of untreated CDH include late development of painful degenerative changes in the hip joint, spine deformities like hyperlordosis (which leads to back pain in adults) and scoliosis, gait disturbance and knee deformities. [5-9]

The incidence of CDH ranges from 0.1/1000 live births in Chinese children in Hong Kong, [10] 0.7/1000 in Malaysia, [11] 1.5/1000 in Salford, England, [12] 1.7/1000 in Sweden [13], to 75/1000 in Belgrade, Yugoslavia.[14] The aim of the this retrospective study of CDH was to determine the pattern, predisposing risk factors, treatment modalities and outcome in the Aseer region of Saudi Arabia.

Materials and Methods

A retrospective study was carried out at the Aseer Central Hospital, Abha, which serves as a Teaching Hospital to the College of Medicine and Medical Sciences, King Khalid University and was commissioned in 1988 to serve as a referral center for about 218 health institutions in the Aseer region in the Southwestern part of Saudi Arabia (population 1,200,000).[15]

All the 300 patients seen at Aseer Central Hospital with CDH over the 4-year period from 1996 to 1999 formed the basis of the study. The data retrieved from the case records included the pregnancy, birth and family history, methods of diagnosis, treatment modalities and the out come of the treatment given, were also recorded. Data on live births for the same period was collected from the Directorate of Health, Aseer Region, Ministry of Health, Saudi Arabia, so as to calculate the incidence of CDH among live births.

Patients were seen at various stages of their development and the clinical presentation depended on the age of the patient and his/her walking status.

In order to reach a diagnosis, the clinical tests performed included: Ortolani test [16-17], Barlow test[12], Limitation of hip abduction on the affected side (usually noted by parents when diapers are changed)[18], shortening of the thigh on the affected side when child starts to walk and gait disturbance (limping on shorter side in unilateral CDH and waddling gait, like a duck in bilateral CDH).

Plain x-ray of pelvis was taken to confirm the diagnosis of CDH in children at the age of 3 months.[19]

Results

A total of 79,548 live births occurred during the period of 4 years (1996-1999). Out of these, 300 children had the congenital dislocation of hip giving an incidence rate of 3.77/1000 live births. The parents of 22 (7.3%) of the children were found to be blood relatives (mainly first cousins). Avascular necrosis (AVN) was observed in 6 children (2%).

Table 1 shows the distribution of 300 cases of CDH according to some characteristics. The male to female ratio was 1:3.6 (65 males : 235 females). The majority of the cases, 292 (97.7%) were Saudi and only 8 (2.3%) were non-Saudis. The birth order of children with CDH ranged between 1 to 9 with a mean of 3.4. There was a positive family history of CDH in 64 cases (21.3%). Four of the children with CDH were siblings (Fig. 1). The 4 children either had unilateral (Fig. 2) or bilateral CDH (Fig. 3). The left hip was involved in 82 children (27.3%), and the right hip in 67 children (22.3%). Bilateral CDH was diagnosed in 151 children (49.8%).

Analysis of the maternal history showed that 14 children (4.7%) has pre-term delivery, 29 children (10%) had breech presentation while 30 children (10.7%) had some form of assisted delivery such as caesarean section (28 cases) and forceps (2 cases). There was only one twin pregnancy with normal delivery in this series of cases.

Table 1 Distribution of cases of CDH in Aseer region according to some characteristics.

Characteristics	Boys (N = 64)	Girls (N = 236)	Total (N = 300)
Birth order			
1st	10 (22.2)	46 (26.9)	56 (25.9)
2nd	13 (28.9)	31 (18.1)	44 (20.4)
3rd	7 (15.6)	26 (15.2)	33 (15.3)
4th	15 (33.3)	68 (39.8)	83 (38.4)
Total	45 (100.00)	171(100.00)	216 (100.0)
X±SD	3.38 (2.62)	3.51(±2.7)	t = .292 (P = .77)
Nationality			
Saudi	64 (100.0)	228 (97.0)	292 (97.7)
Non-Saudi		7(3.0)	7 (2.3)
Total	64 (100.0)	235 (100.0)	299 (100.0)
			X^2 = 1.952 (P = .162)
Family History			
Yes	17 (26.6)	46 (19.5)	63 (21.0)
No	47 (73.4)	190 (80.5)	237 (79.0)
Total	64 (100)	236 (100.0)	300 (100.0)
			X^2 = 1.517 (P = .218)
Bilaterality			
Yes	33 (51.6)	116 (49.4)	149 (49.8)
No	31 (48.4)	119 (50.6)	150 (50.2)
Total	64 (100.0)	235 (100.0)	299 (100.0)
			X^2 = 0.97 (P = .755)
Gestation			
Pre-term	7 (10.9)	7 (3.0)	14 (4.7)
Full Term	57 (89.1)	229 (97.0)	286 (95.3)
Total	64 (100.0)	236 (100.0)	300 (100)
			X^2 = 7.191 (P = .007)
Abnormal presentation			
Yes	10 (16.1)	19 (8.3)	29 (10.0)
No	52 (83.9)	209 (91.7)	261 (90.0)
	62 (100.0)	228 (100.0)	290 (100.0)
			X^2 = 3.292 (P = .07)
Abnormal delivery			
Yes	7 (10.9)	23 (9.8)	30 (10.0)
No	57 (89.1)	212 (90.2)	269 (90.0)
Total	64 (100.0)	235 (100.0)	X^2 = .074 (P = .786)
Age of Diagnosis (months)			
< 6 months	24 (37.5)	72 (31.0)	96 (32.4)
6 -	11 (17.2)	32 (13.8)	43 (14.5)
12 -	25 (39.1)	105 (45.3)	130 (43.9)
36 +	4 (6.3)	23 (9.9)	27 (9.0)
Total	64 (100.0)	232 (100.0)	296 (100.0)
SD ± SD	11.33 (± 14.54)	15.35 (±20.87)	14.48 ± 19.73
			X^2 = 1.9[illegible]1 (P = 0.166)
Age of Treatment (months)			
6 m	-	2 (0.8)	2 (0.7)
6 -	4 (6.2)	7 (3.0)	11 (3.7)
12 -	12 (43.8)	109 (46.2)	137 (45.7)
>36	32 (50.0)	118 (50.0)	150 (50.0)
Total	64 (100.0)	236 (100.0)	300 (100)
X ± SD		44.5 ± 36.41	X^2 = 0.35 (P = .851)
Type of Rx			
Conservative	33 (52.4)	91 (39.2)	124 (42.0)
Surgical	25 (39.7)	111 (47.8)	136 (46.1)
Both	5 (7.9)	30 (12.9)	35 (11.9)
Total	63 (100.0)	232 (100.0)	295 (100.0)
			X^2 = 3.798 (P = .150)
X ± SD	48.47 (43.04)	43.42 (±34.42)	t = .984 (P = .326)
Outcome			
Success	52 (81.2)	200 (84.7)	252 (84.0)
Failure	12 (18.8)	36 (15.3)	48 (16.0)
Total	64 (100)	236 (100.0)	300 (100.0)
			X^2 = 1.795 (P = .616)

Table 2 Logistic regression model of outcome of intervention in CDH

Factors	β	Wald	p-value	Exp (β)
Age at diagnosis	.0237 (.008)	8.8671	.0029*	1.024
Age at treatment	-.0074 (.006)	1.5539	.2126	.9926
Sex	-.4141 (.3786)	1.963	.2741	.6609
Constant	-1.4282 (.3896)	13.4363	.0002*	

** Statistically significant*
Model X^2 = 9.684 (p = .0214)
Overall fit = 84.46%

Table 3 Stepwise multiple regression of age at treatment and some independent variables.

	β	T	P
Age at diagnosis (month)	.684	5.855	.000*
Family History (positive)	10.76	2.066	.040*
Birth order	.014	.219	.827
Abnormal delivery	-.042	-.639	.524
Abnormal presentation	-.062	-.963	.336
Sex	-.078	-1.185	.238

** Statistically significant*
F = 18.426, p = .000
R = .391, R^2 = .153, adjusted R^2 = .145, SE = 31.76

Table 4 Risk factors for delayed diagnosis +

Factor	p-value
Birth order	.196
Family History	.58
Sex	.13
Nationality	.25
Bilaterality	.18
Gestation	.90
Presentation (Cephalic)	0.03*
Type of delivery (Normal)	.002*

** Statistically significant*
+ Multiple regression for the age at diagnosis was applied
None of the previous variables was a significant predictor of delayed diagnoses (F = .972, P = .459).

About one-third of CDH cases (32.4%) were diagnosed within the first 6 months of life, 9% were diagnosed as late as after 3 years of age. The mean age of diagnosis was 14.5 ± 9.7 months. In the present series, Ortolani test was positive in 58 patients (19.3%), Barlow test in 6 (2%) and reduced hip abduction in 104 (34.7%). Shortening of the affected leg in unilateral cases occurred in 121 patients (40.3%) and limping in 166 patients (55.3%). Some of the patients had two or more positive clinical features.

With regards to the age at commencement of treatment, only 4.4% were treated within the first year of life. On the other hand, those treated after the age of 3 years constituted one-half (50%) of all cases. The mean age at commencement of treatment was 44.5 ± 36.41 months.

Treatment offered included conservative management (42%), surgical management (46%), while 12% were treated by both conservative and surgical methods. Success rate was 84%. 11.7% of cases were lost to follow-up after the diagnosis.

Table 2 shows the relationship between the age at diagnosis and the age at commencement of treatment. There was a significant relationship (F = 31.885, p = 0.0002) between the ages at diagnosis and commencement of treatment.

Table 3 shows a stepwise multiple regression of age at the commencement of treatment and other independent variables. It shows that both the age at diagnosis ($p < 0.001$) and the positive family history of CDH (p = 0.04) were the only significant predictors of delayed treatment.

Logistic regression of the outcome of management of CDH and some independent variables showed that the age at diagnosis was the only significant predictor of the outcome (p = .0029) with Model x^2 = 9.684 (p - 0.02). Favourable outcome was significantly associated with early diagnosis.

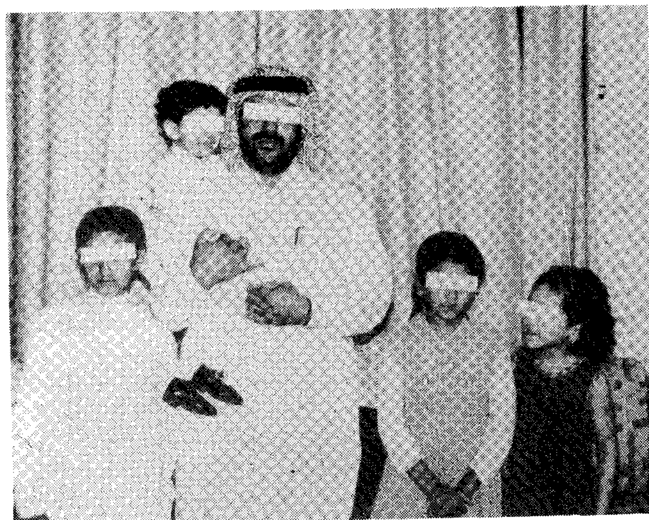

Fig. 1 ***A family of 4 children (a boy aged 10years and 3 girls aged 8, 6, and 2 years respectively). All 4 children had congenital hip dislocati on . The eldest and youngest children had bilateral C DH while the other 2 had unilateral CDH. The par ents were close relatives.***

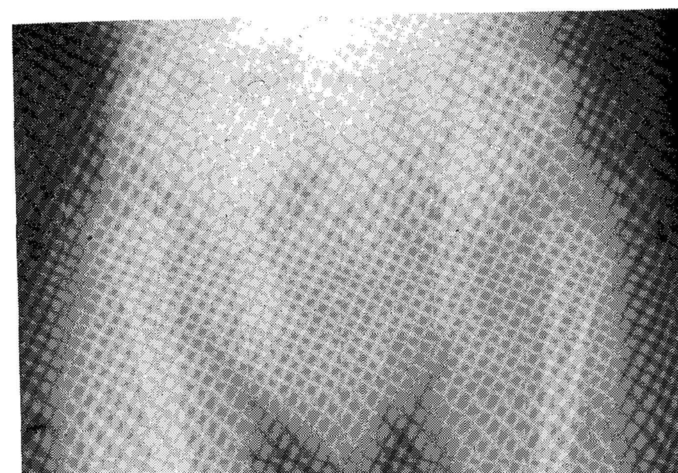

Fig. 2 ***X-ray of the pelvis of the 2nd child at the age of one and a half years. She presented with limping on the right side. X-ray shows right hip dislocation.***

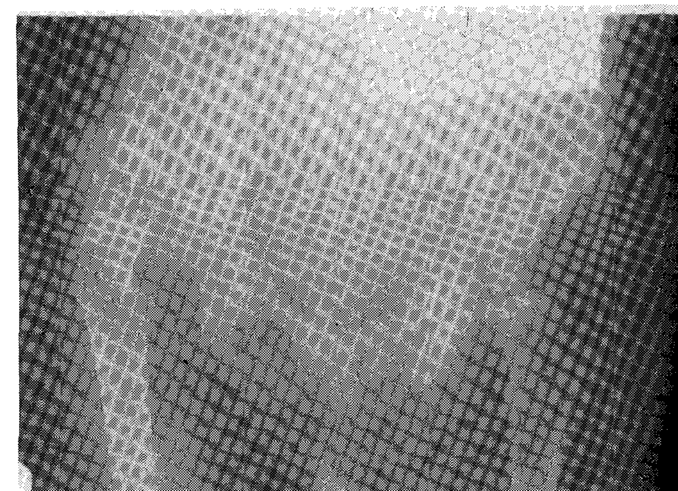

Fig. 3 ***X-ray of the pelvis of the eldest child at the age of 3 years when diagnosis was initially made. There is bilateral hip dislocation. He presented with waddling gait.***

Table 4 shows the possible risk factors for delayed diagnosis. In bivariate analysis the only significant risk factors for delayed diagnosis were cephalic presentation ($p = 0.03$) and normal delivery ($p = 0.002$). However, when controlling for all the other factors in a multiple regression, none of the factors was a significant predictor of delayed diagnosis ($F = 0.972$, $p = 0.459$).

Discussion

The incidence of CDH varies widely from population to population. [10-14] In this series from the Aseer region of Saudi Arabia, the incidence of CDH between 1996 and 1999 was found to be 3.5/1000 live births.

There are certain factors believed to predispose for this condition. One is what has been described as "lack of space" or "large-for-gestational-age" or "hypertrophy of a newborn". [20] This explains why CDH is more common in the primigravida. 50% of cases of CDH seen in Malaysia were in primigravida.[11] In this series, primigravidas constituted 25.9%. The unstreched abdominal muscles and the uterus of a primigravida force the left hip of the fetus against the mother's spine. [21-22] The condition is more common in female babies. [10-14, 23] About three-fourth of cases in the present study were females. The condition is more common on the left sided CDH and believed to be more common when there is a family history of the disease.[24-25] In our series, the left hip was affected in 27.3% of cases and 21% of patients had a positive family history. Several studies have claimed that breech presentation is also a predisposing factor. [23, 26-28] However, in the present study only 29 children (10%) had breech presentation.

Prematurity did not seem to play any major role in the pathogenesis of this condition. Only 4.7% of CDH patients had premature delivery in this series. The role of marriage between close blood relative is not clear. There were 22 children with CDH (7.3%) who had blood-related parents. Birth by caesarean section has been reported to be a predisposing factor.[25] In this series, 9.3% of cases had caesarean section. It has been shown that Chinese children in Hong Kong had an incidence of CDH which was at least 10 times less than what was found in Caucasians.[10] This was believed to be due to "Hong Hong" position in which the children were carried on the back with the hips in a position of wide abduction. A previous study of Saudi tradition of infant wrapping with lower limbs extended and abducted *(mehad)* tends to suggest that it may predispose to hip dislocation or unfavourably affect the future progress of an unstable hip. [29] *Mehad* application is a very common practice in the Aseer Region of Saudi Arabia.

Awareness and early neonatal hip examinations of all babies born, especially those at risk is an important condition for the early detection of CDH.[24] However, late presentations still occur because missed examinations continue to be significant. [30-31]

In the present study, a major problem of delayed diagnosis was identified as only one-third of the chidlren (32.4%) were diagnosed within the first 6 months of life. The mean age of diagnosis was 14.5 (± 19.7) months. Bivariate analysis showed that the only significant risk factors for delayed diagnosis were normal delivery and normal cephalic presentation (Table 4). This indicates poor methods of screening the CDH in newborns in the region, especially for the normally delivered children.

Another major problem noted in this series was the delay in the initiation of treatment for the children with delayed diagnosis. The mean age at the start of the treatment was 44.50 ± 36.41 months. The only significant predictors for delayed treatment were age at diagnosis ($p < 0.000$) and a positive family history of CDH ($p = 0.04$) (Table 3). Positive family history and the difficulties experienced by the head of the family while getting an elder sibling treated for CDH, could be the important reasons for delaying the diagnosis and treatment of a younger child (Fig. 1).

The management of CDH is either conservative, surgical or both. In this series, 42% of the children were treated conservatively, 46% surgically and 12% by both conservative and surgical methods. The overall success rate of treatment was 84%. Age at diagnosis was the only significant predictor of the outcome (Table 2), while early diagnosis led to a significant success rate compared to those with late diagnosis.

Growth disturbance of the proximal femur in CDH occurs only in patients who have been treated.[32] This is commonly referred to by the term avascular necrosis (AVN) or aseptic necrosis. It is considered as one of the most disastrous complications associated with treatment of CDH. The reported incidence varies from none to 73%. [33-38] In this series, 2% of the children developed AVN. The sequelae of AVN of the proximal femur are serious and include deformity of the femoral head, shortening of the femoral neck, hip joint incongruity and osteoarthristis of the hip in later life. The incidence of AVN increases with delay in treatment The younger patients have a lower rate of AVN. [2-3]

Conclusion

The incidence of CDH in Aseer Central Hospital and by inference, Aseer region of Saudi Arabia is 3.5 per 1000 live births. Since neonatal screening for this condition in the region is poor, awareness, routine hip examinations of newborn and regular hip joint examination up to one year of age in high risk children is recommended. Ultrasound hip examination at birth and pelvic x-ray after the age of 3 months in a high risk baby is also recommended.

Repeated examinations during the first month of life are essential to prevent missing cases of neonatal CDH. Special emphasis should be paid in case of normal delivery. Children who are delivered normally should also have routine clinical examination.

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The pattern of stab injuries in Port Harcourt

***J. M. Adotey and N. J. Jebbin**

Dept. of Surgery, Univ. of Port Harcourt Teaching Hospital
P. M. B. 6173, Port Harcourt, Rivers State

Summary

All cases of stabbing reporting to the casualty Department of the University of Port Harcourt Teaching Hospital (UPTH) between 1st January 1997 and 31st December, 1997 were studied prospectively. Fifty new cases reported within the study period. Thirteen cases required admission while 37 cases were treated and discharged from the casualty department. The majority of injuries were minor and most victims were male and of these, students in the age group 21 - 30 years formed the greatest number. The most common weapon used was broken bottle and injuries involving multiple anatomic regions were in the majority. All cases requiring major surgical intervention reported within 6 hours of injury. No mortality was recorded.

Keywords: ***Stab wounds, Port Harcourt broken bottles, Students.***

Résumé

Tous les cas de coups de poignard, rapportes au Services des Accidentes du centre Hospitalier Universitaire de Port Harcourt (UPTH) entre le 1er Janvier 1997 et le 31 Decembre 1997, etaient étudiés en pers pective. Cinquante nouveaux cas necessitaient une admission tandis que trente - Sept. cas etaint legeres et la plupart des victímes etaient des males - dont des etudiants, âges de 21 a 30 ans, constituaient le plus grand nombre. L' arme la plus couramment utilisee était la bouteille brisee et les blessures necessitant de multiples regions anatomiques etaient dans la majorite des cas. Tous les cas necessitant une intervention cherurgicale majeure rapportes a moins de 6 heures de accident. Aucune mortalitee n'était enregistres.

Subjects and methods

All patients reporting to the Casualty Department with stab injuries were studied prospectively using a standard proforma (Table 1). The period of study was from 1st January 1997 to 31st December 1997. No cases reported to the casualty for a period of three months (1st September 1997 to 8th January 1998) when the Casualty Department was closed as a result of industrial (strike) action by junior doctors of the UPTH. All data were obtained directly from the patients using the standard proforma (Table 1). In situations where patients were admitted to the wards or had surgical procedures carried out in theatre the relevant information/findings were obtained from the ward/theatre records and patients' case notes.

Results

Fifty stab wound cases were recorded over the study period and these form the basis of this report. The majority of victims (22 cases i.e. 44%) fell into the age range 21 - 30 years (Fig. 1) followed by the age range 11 - 20 years with 16 cases (32%). Males were 42 in number as opposed to 8 females. There were 15 student victims, followed by 8 victims who were petty traders, 4 unemployed and 3 businessmen. Two victims each were recorded as car mechanic, carpenter and motorcyclist while there was one each of welder, barber, housewife, bus conductor, plumber, tailor and taxi driver.

A variety of weapons was used. The most commonly used veapon was broken bottle (24), others include knife (9) matchet 4), combined knife and broken bottle (2) and dagger (3). Other /eapons used were firewood, broken louvre glass, axe and broken rinking glass. Twenty two attacks took place at night, 15 in the vening and 11 in the morning. The most frequent day of presen- tion was Thursday (11), followed by Wednesday/Sunday (9),

Table 1 Standard Proforma

Name
Address
Age
Sex
Occupation
Place of attack
Assailant
Weapon
Alcohol consumption
Day of Week
Time of attack
Delay of presentation to A & E Department (Casualty)
Site of injury
Investigations
Intervention performed
Outcome
Admission to hospital
Duration of stay, investigations and subsequent intervention

Table 2 Description of injury, intervention and outcome by anatomical region

Region of injury	Intervention	Outcome
Gastrointestinal		
Small bowed perforation (2 cases)	Exploratory Laparotomy Suturing of perforations	Satisfactory
Vascular		
Laceration of radial artery (One case)	Wound exploration Ligation of radial artery	Satisfactory
Thoracic		
Pneumothorax (3 cases)	Closed tube thoracostomy	Satisfactory
Haemopneumothorax (one case)	Closed tube thoracostomy	Satisfactory
Anterior chest wall laceration (two cases)	Wound exploration and primary suturing	Satisfactory
Limbs		
Compound fracture radius /ulna (One case)	Wound toileting, suturing and POP application	Satisfactory
Multiple Sites		
Neck, Upper limb, lower limb trunk and back lacerations (37 cases)	Suturing	Satisfactory
Others		
Anterior abdominal wall penetrating Injury without visceral damage (3 cases)	Exploration of anterior abdominal wall & primary closure	Satisfactory

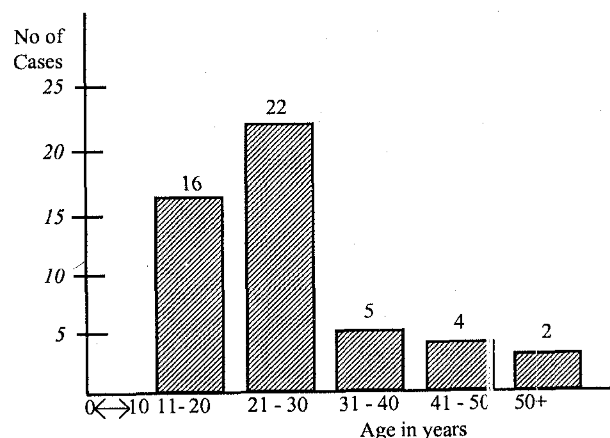

Fig. 1 ***Age of Presentation***

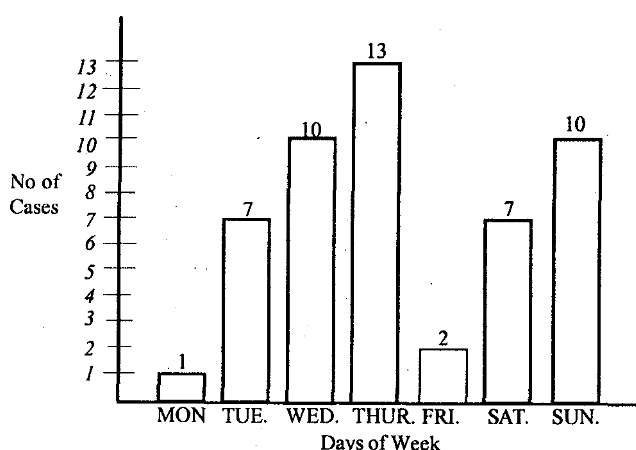

Fig. 2 ***Day of presentation***

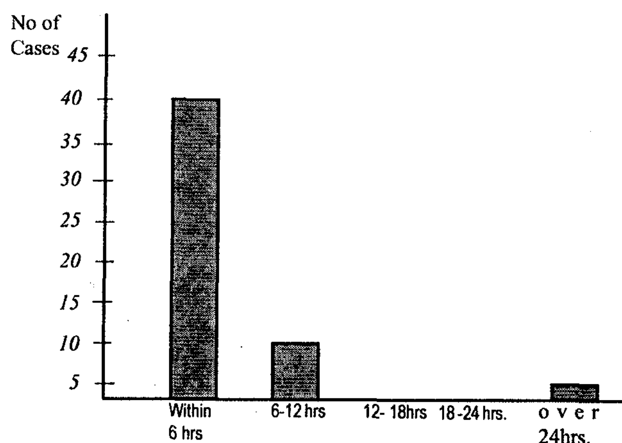

Fig. 3 ***Injury time before presentation***

Tuesday (7) (Fig. 2). The majority of patients presented to the casualty within 6 hours of injury (39 cases), 11 patients reported after 6 hours but before 12 hours (Fig. 3). There are various reasons for the delay in presentation namely; transport difficulty, unavailability of helpers, prior visit to patient medicine store and prior reporting to the police station. Almost half of the patients (24) presented to the casualty in the night.

Thirteen patients required admission; the remainder (37) were treated and discharged from the casualty department. Six injuries involved the abdomen and of these 2 required exploratory laparotomy (Table 2). A third case which was earmarked for laparotomy eventually signed against medical advice and left. Of those admitted the average duration of stay in hospital was 10.6 days. There were 6 chest injuries out of which 4 had closed tube thoracostomy. No self inflicted stab wounds were encountered in this study but there was one instance in which a husband stabbed the wife.

Four victims were found to have consumed alcohol at the time of presentation to the casualty department. This assessment was made purely on the fact that the victims smelt of alcohol.

Discussion

There has been no previous report about stab injuries from this region of Nigeria. In the University of Port Harcourt Teaching Hospital the impression has been that the incidence of stab injuries is on the increase but no details or documentation of facts can be given about this suspicion.

Stab injuries tend to present in a dramatic way and the layman associates them with serious and significant consequences.[1, 4] In this study the majority of injuries were minor requiring wound toileting, suturing and dressing. Furthermore, the greater number of patients did not require admission - only 13 out of 50 patients (26%) were admitted. In their study in Cardiff Frigelstone et al found 48% of their patients required admission.[1]

The male/female ratio was 5.3:1. This is not surprising as males are more likely to be involved in activities that could result in such injuries. Furthermore as family breadwinners, they are also more exposed.

The study found stab injuries to be largely a problem of the young. The 21 - 30 year age group was most commonly involved (22 cases), followed by the 11 - 20 years age group (16 cases). This is an interesting observation because these constitute the age group in which students are to be found. Students turned out to be the most affected victims in this study. Cult activities are predominantly found among student groups and the common scenario is when rival groups attack each other inflicting varieties of injuries on themselves some of which prove fatal.

There was one instance in which a 24-year-old housewife was stabbed by the husband. In a study reported from Papua New Guinea three such stab injuries were inflicted by husbands on their wives.[2] In the Cardiff study wives assaulted their husbands in 13% of cases. None of this latter situation was encountered in the present study.

It was obvious in this study that any anatomic region could be affected. The majority of victims had injuries involving multiple anatomic regions (13 cases). The head/neck and upper limbs were next the most common regions (8 cases each). This latter observation may be explained by the fact that in order to ward off an attack to the exposed head/neck regions, the upper limbs are used as means of defence.

Abdominal and chest stab wounds were six each in number. Two of the abdominal injuries required exploratory laparotomy because they were the penetrating in type. Although described and practised by some workers a "stabogram" (Sinogram)[5] was not used as a diagnostic tool in this study to establish the extent of penetrating injuries.

It was easier and less time consuming to do local wound exploration under aseptic conditions or proceed to exploratory laparotomy. This is because the present set up of the radiological services of the hospital makes it very difficult and extremely time consuming to organise any such study involving the use of contrast media. Additionally, the contrast medium may not even be available and patients relations may be required to purchase such from outside of the hospital. The two cases requiring exploratory laparotomy were found to have sustained perforations of the small bowel. These were closed in two layers (Table 2). The third case earmarked for laparotomy however signed against medical advice and left. The intra abdominal injury sustained by this patient could therefore not be confirmed. The rest of the abdominal injuries (3 cases) involved only the anterior abdominal wall without intraperitoneal penetration. Of the chest injuries the greater number had closed tube thoracostomy. The majority of victims (almost half) presented at night and this was the experience in other studies.[1] The reason for this is not immediately apparent but it would appear that people are more likely to hide under cover of darkness to commit such crimes. Moreover club activities are also predominant at night and most times the club users get drunk.

Most patients presented to the casualty within 6 hours of injury and invariably these constituted the group with more serious injuries requiring admission or some kind of surgical intervention. Those reporting late to hospital gave reasons for their late presentation namely: prior visit to a patent medicine store, transport difficulty, unavailability of a helper, or prior visit to the police station. It is common practice for patients to go to patent medicine stores for self medication in this environment. All these patients (who presented late) turned out to have minor injuries requiring outpatient treatment in the casualty department.

A wide variety of weapons were used but the most common encountered in this study was broken bottle followed by knives. Other weapons known to have been used to inflict stab injuries, but not encountered in this study, includes spears, arrows and bars.[5]

The reason for broken bottle turning out to be the most common weapon used is not immediately obvious. However, empty, soft drink as well as beer bottles are easy to come by and many a time rival student groups are seen armed with empty bottles ready to break them and attack each other. It is also possible that some of the broken bottles were obtained directly from bottled drinks recently consumed.

Contrary to popular belief and records that such injuries present commonly at the weekend[1] our study showed that most patients presented on a Thursday. In fact Friday recorded the next lowest day of presentation. The reason for this is not clear but our speculation is that in this environment there is usually mass movement of people to the villages from Port Harcourt for burials, social activities and gatherings, etc. at the weekend. The potential for assault and resultant stab injuries is therefore reduced at such times.

Alcohol has been found to be one of the factors associated with an increased incidence of stab injuries.[1,2] It was not surprising therefore that four victims in this study were found to have consumed alcohol at the time of presentation.

In conclusion injuries from stabbing are fairly common and in this study the majority were minor. Most of the victims were males and of these, students in the age group 21 - 30 years were in the majority. There was only one instance in which a husband stabbed the wife, and no case of self mutilation was encountered. The most commonly used weapon was broken bottle and all cases requiring major surgical intervention reported within 6 hours of injury.

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Infections caused by *Acinetobacter* species and their susceptibility to 14 antibiotics in Lagos University Teaching Hospital, Lagos.

***K C. Iregbu, F. T. Ogunsola and T. O. Odugbemi**
** Department of Medical Microbiology & Parasitology, National Hospital P. M. B. 425, Garki, Abuja E-mail: kciregbu@hotmail.com*
Department Of Medical Microbiology & Parasitology, Lagos University Teaching Hospital/College Of Medicine, University Of Lagos, Lagos, Nigeria

Summary

***Acinetobacter* spp are well recognised as causes of nosocomial infections particularly in patients with immature or defective body defence system. Information concerning these organisms are lacking in this environment. For this reason the pattern of infection and the antimicrobial susceptibility profiles of these organisms isolated over a one-year period were studied.**

A total of 58 (3%) of the 2001 isolates from all clinical specimens received in the laboratory during the year were *Acinetobacter* spp. The 58 *Acinetobacter* spp constituted 5.5% of all the 1051 NLF-GNB isolated, and caused 4.6% of all the 1261 nosocomial infections. Thirty-seven (63%) and 17 (30%) of the *Acinetobacter* isolates were from wound infections and UTI respectively. All the infections were nosocomially acquired and were associated with compromised host immunity, defective body defence, surgery or urinary catheterization; with *Acinetobacter baumannii* being the predominant species. There was an apparent male predominance over females by a ratio of 1. 9:1 in the infections, particularly from 45 years and above. One hundred percent and 96.6% of the isolates were susceptible to cefoperazone-sulbactam and travofloxacin respectively. Forty-five (77.6%) were susceptible to cefotaxime, 49 (84.5%) to ampicillin-sulbactam, 34 (58.6%) to ceftazidime, 38 (65.6%) to ticarcillin-clavulanic acid and 41 (70.7%) to ciprofloxacin. Generally the *Acinetobacter* spp showed multiple resistance to the range of antibiotics tested. All the isolates produced beta-lactamase.

Key words: ***Acinetobacter, Epidemiology, Antimicrobial susceptibility***

Résumé

Les *Acinetobacters* spp sont bien reconnus commes les causes des infections nosocomiaux en particulier chez les patients avec le système de la defense du corps defectif ou immaturé. On manque des informations adéquates concernant ces organismes dans cet environnement. A cause de cette raison, le modèle de l'infection et les profiles de la susceptibilité antimicrobien de ces organismes isolès au cours de la période d'une année ont été étudiés.

Le nombre total de 58 soit 3% de 2001 isolés de tous les spécimens cliniques reçu dans le laboratoire durant cette année étaient *Acinetobacters* spp. Tous les cas de 58 *Acinetobacters* spp avaient constitué 5,5% de tous les 1051 NLF-GNB isolés et ont causé 4,6% de tous 1261 cas des infections nosocomiales. Trente sept soit 63% et 17 soit 30% de cas des isolés *Acinetobacters* résultent des infections des blessures et de UTI respectivement. Toutes les infections sont acquises à travers la nosocomiale et elles avaient des rapports avec la faiblesse de l'immaturité de l'hóte, la défense du corps défectueux, la chirurgie ou la catéchisation urinaire, avec *Acinetobacter* baumannil qui était l'espèce le plus prédominant. On avait noté la predominance de male par rapport aux femmes dans la proportion 1: 9: 1 dans l'infection à partir de l'âge de 45 et au dessus en particulier. Cent pour cent et 96.6% des isolés étaient susceptibles au cefoperazone-sulbacta, et travofloxacine respectivement. Quarante cinq soit 84.5% au ampicilline-sulbacta, 34 soit 58.6% au ceftazidime, 38 soit 65.6% a l'acide ticareilline-clavulanie et 41 soit 70,7% au ciproflozacine. Dans l'ensemble, l' *Acinetobacter* spp. a indiqué une résistance multiple au champs des épreuves antibiotiques. Tous les isolés avaient produit beta-lactamase.

Introduction

The genus *Acinetobacter* was originally placed in the family of *Neisseriacea* but has recently been moved to the family of *Moraxellaceae*[1]. *Acinetobacter* spp are widespread in nature and in the hospital environment, and are the second most commonly isolated non-fermenters in human specimens.[2]

The genus consists of strictly aerobic, gram-negative coccobacillary rods that are oxidase negative, non-motile, nitrate negative and nonfermentative.[2] The colonies are smooth, opaque, and slightly smaller than those of *Enterobacteriaceae*.[2] Many strains grow on MacConkey agar as either colourless or slightly pinkish colonies.[2] Some strains are fastidious, showing punctate colonies on blood agar, and fail to grow in nutrient broth.[2] *Acinetobacter* spp are most commonly found in the soil, water and as part of the normal flora on human skin and in the gastrointestinal and upper respiratory tracts.[2,3] The genus consists of about 21 different DNA groups or genomospecies [4,5,6] some of which are widely distributed in most hospital environments, and have been implicated in a variety of nosocomial infections including bacteraemia, urinary tract infections, pneumonia and wound infections.[2,7] These infections are usually difficult to treat because *Acinetobacter* spp are often multiple resistant to the major groups of antimicrobials and therefore, usually require combination therapy.[7]

The therapeutic problems are compounded by the fact that these bacteria have the capacity to survive for a long time in the hospital environment and are easily transmitted between patients either through human reservoirs or inanimate materials.[2] This situation has led to an increased concern regarding nosocomial infections due to this organism. Risk factors associated with *Acinetobacter* infections include antibiotic treatments, surgery, instrumentation, and stay in the intensive care unit. [7,8] A previous study has shown that the digestive tracts of patients in the intensive care unit are important epidemiologic reservoirs for multidrug-resistant *Acinetobacter baumannii*, the most commonly isolated species.[9] In spite of the increasing significant and prevalence of multiply resistant *Acinetobacter* spp, many Clinicians and Microbiologists still have not appreciated their importance, partly because of the confused taxonomic status, which until recently was associated with these organisms[10] and party because the laboratories are not identifying them. This may have accounted for the absence of any known local work on *Acinetobacter* spp. This study was designed to highlight the status of *Acinetobacter* spp in hospital infections, including their epidemiology and antibiotic susceptibility profile.

Materials & Methods

All non-lactose fermenting (NLF) Gram-negative bacilli (GNB) adjudged as clinically significant from proven hospital acquired infections were studied, from where 58 *Acinetobacter* spp were identified. Thirty seven (63%) of the 58 *Acinetobacter* isolates were from wound infections, 17(30%) from urinary tract infections (UTI) and 4(7%) from bacteraemia.

* *Correspondence*

The isolates were sub-cultured onto nutrient and MacConkey agar, for purification, and incubated in air at 35-37°C for 18-24 hours. Pure colonies were used for subsequent tests. Those isolates that were non-motile, oxidase-negative morphologically Gram-negative coccobacillary and showing alkaline butt and slope on a TSI medium (DIFCO Laboratories, Detroit, Michigan, USA) were considered to be non-fermentative, and tentatively identified as *Acinetobacter* spp.[11] They were further identified by the API 2 ONE (bioMerieux SA, Marcy-l'Etiole, France).

The 58 *Acinetobacter* isolates were tested against Ceftriaxone, Cefuroxime, Ceftazidime Cefotaxime, Cefoperazone-Sulbactam, Ampicillin-sulbactam, Amoxycillin-Clavulanate, Ticarcillin-Clavulanate, Gentamicin, Streptomycin, Trimethoprim-Sulfamethoxazole, Ciprofloxacin, Travofloxacin and Nalidixic Acid for susceptibility by the gradient diffusion method using the Elipsometer (E-test) strips (AB-Biodisk Solna Sweden).[12] The beta-lactamase detection test was done by the starch paper technique.[13] *Escherichia coli* ATCC 25922 was used as control[14]

Results

Table 1 shows that 38 (65.5%) of the 58 *Acinetobacter* infections occurred in males while 20 (34.5%) occurred in females. Males aged 45 years and above accounted for 28 (48.3%) of all the infections while females in the same age group accounted for only 6(10.3%). Only 4 (6.8%) occurred in children 14 years and below.

Table 1 Distribution of *Acinetobacter* isolates by age and sex

Age	Male (%)	Female (%)	Total (%)
0 - 1 month	1 (1.72)	-	1 (1.72)
> 1 month - 1 yr	-	1 (1.72)	1(1.72)
> 1 yr. - 4 yrs	-	1(1.72)	1 (1.72)
5 - 14 yrs	1 (1.72)	-	1 (1.72)
15 - 44yrs	8 (13.79)	12 (20.70)	20 (34.49)
45 - 59 yrs	12 (20.70)	5 (8.63)	17 (29.33)
60yrs & above	16 (27.58)	1 (1.72)	17 (29.30)
Total	**38 (65.51)**	**20 (34. 49)**	**58 (100)**

Table 2 Distribution of *Acinetobacter* spp in various clinical specimens

Specimens	No (%)	Total (%)
Wound swab:		37 (63)
Post - surgical	24 (41)	
I. V. - line related	3 (5)	
Road Traffic Accident	4 (7)	
Ulcer	3(5)	
Gun-shot	1 (2)	
Burns	2 (3)	
Urine:		17 (30)
Mid-stream urine	1(2)	
Catheter-specimen urine	16(28)	
Bacteraemia	4 (7)	4 (7)
Total		**58 (100)**

Table 3 shows the species distribution. *Acinetobacter baumannii* constituted 50 (86.2%) of the 58 species isolated.

Table 3 Prevalence of *Acinetobacter* spp* isolated from clinical specimens

Species	No. (%)
Acinetobacter baumannii	50(86.2)
Acinetobacter Iwoffi	3 (5.2)
Acinetobacter johnsonii/junii	3 (5. 2)
Acinetobacter haemolyticus	2 (3.4)
Total	58 (100)

**Species identified by API 20NE*

Out of a total of 1051 NLF-GNB analysed during the period, 58 (5.5%) were *Acinetobacter* spp. Of these 37(63%) were isolated from wound swabs, i.e. post-surgical wound infections. Seventeen (30%) were from cases of UTI, mainly catheterised patients, while 4(7%) were from bacteraemias (Table 2).

It is shown in Table 4 that all the *Acinetobacter* isolates were susceptible to cefoperazone-sulbactam, 96.6% to travofloxacin, 84.5% to ampicillin-sulbactam, 77.65 to cefotaxime and 70.7% to ciprofloxacin. Only 55.25 were susceptible to gentamicin and nalidixic acid and 10.4% to trimethoprim-sulphamethoxazole. All the isolates produced beta-lactamase enzymes.

Table 4 Antimicrobial susceptibility pattern of *Acinetobacter* spp

Antimicrobial Agent	Number Tested	Number susceptible (%)	Number moderately susceptible (%)	Number Resistant (%)
Ceftriaxone	58	15 (25.9)	5 (8.6)	38 (65.5)
Cefuroxime	58	5 (8.6)	3 (5.2)	50 (86.2)
Ceftazidime	58	34 (58.6)	12 (20.7)	12 (20.7)
Cefotaxime	58	45 (77.6)	13 (22.4)	-(0)
Cefoperazone - Sulbactam	58	58 (100)	- (0)	- (0)
Ampicillin - Sulbactam	58	49 (84.5)	- (0)	9 (15.5)
Amoxycillin-Clavulanate	58	12 (20.7)	14(24.1)	32 (55.2)
Ticarcillin-Clavulanate	58	38(65.5)	6(10.4)	14 (24.1)
Gentamicin	58	32(55.2)	- (0)	26 (44.8)
Streptomycin	58	28(48.3)	- (0)	30 (51.7)
Trimethoprim - Sulfamethoxazole	58	6 (10.4)	- (0)	52 (89.6)
Ciprofloxacin	58	41(70.7)	- (0)	17 (29.3)
Trovofloxacin	58	56 (96.6)	2 (3.4)	- (0)
Nalidixic Acid	58	32 (55.2)	6(10.3)	20 (34.5)

Discussion

This study was carried out to determine the epidemiology and antibiotic susceptibility profile of *Acinetobacter* spp. It is obvious from the result of the study that *Acinetobacter* spp cause significant nosocomial infections, being responsible for 4.6% of all the nosocomial infections seen during the study period as against the 3% recorded in the National Nosocomial Infection Study report to the CDC in 1990.[15] This is particularly significant because *Acinetobacter* spp are known to be the most persistent Gram-negative bacilli on the hands of hospital staff,[16] and so can easily be transferred from one patient to another. This may probably explain why 37 (63%) of the infections were wound infections, and a total of 50(86.2%) occurred in the surgery unit where hand contamination of wound and catheters are fairly common.[16] Elsewhere *Acinetobacter* spp are known to cause significant nosocomial respiratory tract infection in patients in the intensive care unit.[17] The absence of such findings here may be attributed to the non-functioning of the unit in the hospital during the study period, and so no specimen was received from the unit. The four cases of bacteraemia constituted 4.9% of all cases of bacteraemia seen during the study. This is slightly higher than recorded in previous studies (2- 4%).[18,19] All the bacteraemias occurred in children, two of whom were infants (one neonate), and were all related to intravenous infusions. Generally the infections were associated with compromised body immunity such as surgery, catheterisation, burns and intravenous lines. Similar findings have been made from previous studies.[20-24] *Acinetobacter baumannii*, like in other studies,[2,7] predominated in all the infections, constituting 50(86.2%) of all the species isolated. Males aged 45 years and above appear to be more susceptible than females in the same age range. This can be attributed to higher prevalence of indwelling catheter in this group as a result of prostatic enlargement and its associated surgery.

Acinetobacter spp are generally known to exhibit multiple resistance to various antibiotics.[25-28] In the 1970s, *Acinetobacter* infections were treated with Ampicillin, second-generation cephalosporins, minocycline, colistin, Carbenicillin, and Gentamicin.[24]

Most strains are now resistant to Ampicillin, Carbenicillin, Cefotaxime, and Chloramphenicol, with some centres reporting up to 84% of strains resistant to Gentamicin.[29] In this study 77.6% of strains were susceptible to Cefotaxime whereas only 25.9%, 8.6% and 58.6% of Ceftriaxone, Cefurozime and Ceftazidime respectively were susceptible. This may be the response to selective pressure since these later three drugs are the most commonly used cephalosporins in this environment. A resistance level of 86.2% against Cefuroxime is similar to what has been found in Europe[30] while 15-62% of *Acinetobacter* spp in Hong Kong, Malaysia, and Singapore, and 68-100% of strains in China and Taiwan are resistant to third-generation cephalosporins.[31] It is noteworthy that drugs containing the beta-lactamase inhibitor Sulbactam showed higher antibacterial activity against *Acinetobacter* spp than those containing clavulanic acid. This may likely be due to the unusual inhibitory activity of Sulbactam against *Acinetobacter* species.[32] Susceptibilies of the strains to Cefoperazone-sulbactam and Ampicillin-sulbactam were 100% and 84.5% respectively while only 20.7% and 65.5% were susceptible to Amoxycillin-clavulanate and Ticarcillin-clavulanate respectively. Cefoperazone-sulbactam, Ampicillin-sulbactam and Imipenem have been found to be the most active against *Acinetobacter* spp in Argentina and Hungary[30,33] The organisms showed high resistance to both gentamicin and streptomycin. Similar findings have been made elsewhere.[30,31,33,34] Gentamicin is the most commonly used aminoglycoside in LUTH.

Ninety-six to 100% of the strains were susceptible to travofloxacin while 70.7% were susceptible to ciprofloxacin. In Europe and Latin America 50 - 70% of the strains have been found to be resistant to ciprofloxacin[30,33]. The indiscriminate use of the third generation cephalosporins in this hospital and the general abuse of drugs by the people[35] may have accounted for the increasing resistance level found against the tested drugs and probably others. The newer members of the third generation cephalosporins and the fluoroquinolones appeared more effective than their older members. This observation has also been previously noted.[7] All the isolates were found to be beta-lactamase producers, a situation which may also have contributed to the multiple resistant nature of the organisms.

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Spinal cord injuries in Ilorin, Nigeria

Babatunde A. Solagberu
Consultant Orthopaedic and Trauma Surgeon, Department of Surgery
University of Ilorin Teaching Hospital, Ilorin, Nigeria.
P. O. Box 4377 Ilorin, Nigeria
E-mail: basolagberu@yahoo.com

Summary

Background: **Spinal Cord Injuries (SCI) usually result from road traffic accidents (RTA), falls, sports and some misadventures. This study was carried out to examine the aetiology of SCI in Ilorin, Nigeria; factors contributory to morbidity and mortality and to suggest measures for reducing them.**

Methods: **Age, sex, mechanism of injury, complications, duration of treatment and eventual outcome of patients admitted for SCI from 1995 to 1999 were restrospectively studied.**

Results: **Thirty-nine patients, age 19 to 60 years (mean 37.3), 36 males and three females were seen. Cervical spine injuries accounted for 46.2% of the cases. Road traffic accidents caused 67% and falls 23%. Accidents involving passengers in open lorries are associated with SCI when the goods fall on passengers as seen in five of the 26 RTA's (19.2%). More falls from kola-nut (44%) than from palm tree (11%) were observed. Limb paralysis and bladder dysfunction were the commonest complications. Ten patients died, 70% of them had cervical spine injuries. Nine of the ten deaths had multiple transfers to different centres before admission.**

Conclusion: **This pattern of SCI in Ilorin, Nigeria showed that RTA has surpassed falls from trees, as the most common cause of SCI in Ilorin and probably in Nigeria. Indeed, the predominant tree implicated in this study has been kola nut tree unlike the palm tree in earlier reports. Imperative measures to improve morbidity and mortality include health education on passenger and load carriage, use of manual or motorised wheel barrow as against bearing heavy load on the head, principles of moving spinal injured patients taught every road traveller and establishment of spinal centres and training of specialised personnel.**

Keywords: ***Spinal Cord, Injury, Paraplegia, Quadriplegia***

Résumé

Arrière-plan

Blessures à travers la moelle épinière (SCI), d'ordinaire résultent des accidents de la circulation routière (RTA), tomber par terre, du sports et quelques mésaventures. Cette étude a été effectuée pour déterminer l'étiologie de (SCI) à Ilorin au Nigeria, des facteurs responsables pour la morbidité et la mortalité et de suggérer des mesures à prendre affin de les réduire.

La Méthodologie

Age, sexe, mécanisme des blessures, complications, durée du traitement et les résultats finals des patients admis à l'hôpital pour SCI à partir de 1995 au 1999 ont été rétrospectivement étudiés.

Résultats

Trente-neuf patients âgés de 19 à 60 ans (moyen 37,3),36 mâles et trois femmes ont été étudiés. Les cas des blessures épines cervicale étaient 46,2%. Des accidents de la circulation routière était 67%, tomber par terre 23%. Des accidents impliquant des voyageurs dans des voitures ouvertes étaient liés avec SCI quand les marchandises tombent sur les voyageurs comme en est le cas des cinq de cas de 26 RTA soit 19,2%. Plus de tomber d'en haut de Ka lotier 44% que du Palmier 11 % ont été remarqués. La paralysie de boitement et le mal fonctionnement de la vésicule étaient des complications les plus fréquentes. Dix patients étaient morts, 70% d'entre eux avaient des blessures d'épines cervicale. Neuf parmi les dix que étaient morts ont été envoyés aux plusieurs centres avant s'être admis à l'hôpital.

Conclusion

Le modèle de SCI à Ilorin au Nigeria a montré que RTA a dépassé les tombés par terre du haut d'un arbre, comme la cause la plus fréquente de SCI à Ilorin et peut-être au Nigeria. En effet, l'arbre le plus concerné dans cette étude était toujours le ka lotier au lieu de palmier dans des études précédentes. Des mesures urgentes pour l'amélioration de la morbidité et la mortalité sont: l'enseignement sanitaire pour les voyageurs et sur le transport de fardeau, le fait de transporter quelque chose en brouette au lieu de porter un fardeau lourd sur la tête, on doit enseigner aux tous les voyageurs comment se comporter avec des victimes des blessures spinaux, fondation des centres spinaux et formation des spécialistes.

Introduction

It has long been recognised that Spinal Cord Injuries (SCI) constitute a problem for surgeons in West Africa.[1,2,3,4] Not much has changed in prevention and disability. However, a new hierarchy of aetiology has emerged. Documented experiences on SCI from various parts of Nigeria are few and the overwhelming problems remain unsolved.[1,4] This study is a review of the practice in our centre re-examining the care of SCI and the priorities for the future. Spinal cord injuries, still largely a male problem, must be a devastating event to a man and his family. The pattern of major causation is changing from falls from palm trees to road traffic accidents (RTA). Injuries from diving and mechanised sports common in the developed countries[5] have been known to be, and still are, rare in Nigeria.[4] The type of trees climbed is changing from palm tree to kola nut tree probably due to pre-eminence of bottled drinks over palm wine, thus making palm wine drink less attractive and by extension palm tree climbing less prevalent. Many patients visited a primary health care provider soon after the RTA, but the quality of care and transfer remained unhelpful. Indeed, this may have worsened their situation because transfers to well-staffed and equipped centres are not supervised. A special problem in this series deals with passengers in open lorries who get thrown out during an accident. Additionally, when packed together with goods, the goods fall on them causing SCI from the accident. The financial and psychological frustrations in the victims lead many to discharge prematurely from the hospital against medical advice, sometimes to traditional bonesetters. Spinal centres have been established in Britain since 1944[6], the nearest to specialised care in Nigeria is designating a ward or a part of it to SCI; the latter is the practice in our centre. Training of personnel, legislation and enforcement of traffic laws, regular vehicle and road maintenance and improvement in road engineering and health education are critical areas of reducing RTA's and SCI.

Patients and Methods

Records of patients admitted into male and female orthopaedic wards at the University of Ilorin Teaching Hospital Ilorin, Nigeria

Correspondence

for SCI from January 1995 to December 1999 were reviewed to determine the pattern of SCI, the problems encountered during management of the patients and to suggest measures to reduce the morbidity and mortality. Patients that died in the emergency room from SCI, those brought in dead to the hospital, and those who discharged against medical advice or were transferred to other centres before admission into the orthopaedic ward were excluded from the study. Data collected included age, sex, cause and mechanism of the injury, timing of presentation, complications and Frankel's classification, treatment given, the length of admission, the treatment outcome and details of death. The results were analysed and discussed.

Results

Thirty-nine patients met the inclusion criteria comprising 36 males and three females (M:F = 12:1), age ranger 19 to 60 years (mean 37.3 $\pm$ 13.9). Majority (26 patients, 67%) were injured from RTA; nine (23%) from falls and four patients (10%) from misadventures. Twenty-one of the RTA victims were passengers, while the remaining five were drivers. Five passengers during separate accidents were in open lorries carrying goods, which fell on them. Four of the falls were from kola nut trees, two other falls from branches of some tree while victims were cutting leaves for domestic animals, one fall each occurred from the palm tree (victim is a palm wine tapper), the ceiling (victim is a carpenter) and another patient fell from first floor of a building.

Table 1 Levels of spinal cord injury and associated morbidity and mortality

Spinal Level	Morbidity (% total patients)	Mortality (% in the group, % total)
Cervical	18(46.2%)	7(39%, 70%)
Thoracic	13(33.3%)	3(23%, 30%)
Lumbar	5(12.8%)	NIL (0%, 0%)
Thoraco-lumbar	3(33.3%)	NIL (0%, 0%)

The level of injury was in the cervical spine in 18 patients (46.25%), thoracic spine in 13 patients (33.3%) thoraco-lumbar spine (from D11 to L2) in three patients (7.7%) and lumbar spine in five patients (12.8%) — Table 1. There were 10 deaths occurring within day one to 12 (mean 5 days). Most of the mortalities (70%) were in patients with the cervical injuries while 30% occurred in those with thoracic injuries. No deaths occurred in the lower spinal injuries. The patients presented within 28 days of trauma (mean 2.5, median 1.0 day, mode 1.0 day). Duration of admission was for one to 530 days (mean 85.0 days, median 12 days, mode 5 days). There were 11 complications in the patients. The two most common were bladder dysfunction (Table 2) and cord syndromes (Table 3). One patient had no complication. Of the 36 paralysed patients, 27 had Frankel's grade A injury (complete loss of motor and sensation) - 17 paraplegies and 10 quadriplegic including a patient with whiplash injury - Table 3. Two patients had anterior cord syndrome, Frankel's grade B, one each of paraplegia and quadriplegia. Three patients had paresis. Four others had central cord syndrome with paralysis or paresis of the upper limb muscles and normal lower limbs.

Transportation was directly from the scene of accident to our centre in one third of the patients whereas two thirds had more than one transfer before reaching our centre (90% of the mortalities occurred in this group). One third still (13 patients) had secondary transfers from our centre to other places as they were discharged against medical advice (DAMA) after two to 69 days (mean 23.5, median 7.0 days) on admission. Other outcomes apart from DAMA and the death are the 15 discharges (two on wheel chair, three on crutches, five had improved motor function and ambulated unaided and five others who neither improved nor deteriorated but could not afford wheel chair) and one medical doctor who was transfer to another hospital. All the patients were managed non-operately except complicated cervical injuries that were offered skull traction.

Table 2 Complications of spinal cord injuries

Complication	Number of patients (%)
No complications	3 (7.7)
Paralysis (see Table 3 for details)	36(92.3)
Bladder distension	38(97.4)
Paralytic ileus (abdominal distension)	11(28.2)
Constipation / fecal impaction	10(25.6)
Urinary tract infection (paracatheter discharge)	25(64.1)
Hypotension	14(35.9)
Bed sores	12(Grades I = 4, II = 5, III = 2, IV = 1)
Hyperpyrexia	20(51.3)
Depression	8(20.5)
Catheter retention	2 (5.1)
Deep venous thrombosis	4(10.3)

Table 3 Types of paralysis and spinal cord syndromes (Frankel's classification)

Paralytic complication	Number of patients
No injury	1
Complete paralysis (Frankel's A)	27(10 quadriplegia, 17 paraplegia)
Anterior cord syndrome (Frankel's B)	2
Paresis (Frankel's C)	3
Central cord syndrome	4
Caudal equinal syndrome	2

Discussion

The first account of SCI in Nigeria can probably be attributed to Odeku (the first African Neurosurgeon) and Richard in 1971.[4] The prevalence of SCI appears not to have changed since then. They had reported 71 patients in ten years when compared to 39 patients in five years in this report. Evidently, underreporting is also likely apart from the several patients who were excluded from this study. Spinal cord injury victims are predominantly male who travel more as heads of their families and who climb trees in pursuit of economic sustenance. Owosina[1] and Ebong[3] recorded 95% male prepondence in each of their series; Odeku and Richard[4] reported 80% while we found 92.3%. The victims have not benefited from improvement in health care delivery seen in other injuries like fracture care[7,8] in developing countries. Rather, what has changed is the apparent increase in incidence due to increased road network and travel and a consequent changing hierarchy of aetiology from falls from trees in the 1960's and 1970's to RTA in the 1980's and 1990's [2,3,4] Obviously, this series confirms that RTA has surpassed falls from trees as the most common cause of paraplegia and quadriplegia in the tropics unlike the findings of Odeku and Richard[4] in 1971 and Ebong in 1978.[3] In addition, the type of tree responsible appears to have changed from palm trees to kola nut climbers (34%, 68% and 52% respectively) whereas this series showed 44% rate for kola nut tree. This may be attributed to a change in Nigerian's pleasure drinking from palm wine to bottled and canned drinks making tapping of palm-wine from trees less attractive to farmers. In comparison, kola nut chewing has not experienced such change. Indeed, due to its caffeine content, kola nut is attractive to drivers[9] and students to keep them awake. Nonetheless, it is safe to conclude that accidental falls from tree climbing are still an important cause of spinal injury in this environment, though now surpassed by RTA.

The commonest injury was in the cervical region and the least in the thoraco-lumbar area - Table 1. Ebong[3] had found the thoraco-lumbar region being the commonest followed by the cervical region in 1978. Odeku and Richard[4] documented the lumbar region

as the commonest site among palm tree climbers who constituted the majority in their study. Our finding is similar to the hierarchy in Britain[6] and other developed countries of Western Europe and North America[5] with cervical spine being the commonest level and RTA the commonest cause of SCI. Perhaps, the difference in this paper compared to others from Nigeria may be explained by the changing pattern of aetiology of SCI in our environment. The cervical spine, the least stable region of the spine, is susceptible to horizontal forces as in a whiplash injury and RTA is known to generate more horizontal forces than the vertical forces transmitted through the spine in falls from a height, which impact is borne more by the thoraco-lumbar region.

It is noteworthy that two thirds of the victims (26 patients) visited one health care facility or another before transfer to our centre, a tertiary facility. This group of patients had 90% (9 of 10) overall mortality but 34.6% (9 of 26) group mortality while 10% (1 of 10) overall mortality occurred in patients directly transferred to our centre, but 7.7% (1 of 13) group mortality. It remains to be seen whether further injuries occurring during multiple transfers had anything to do with this and further study is needed in this regard. However, reporting time has improved too as most of the patients presented on day one of their injury unlike the extended reporting time characteristic of trauma care in developing countries.[7] Disappointingly, this early reporting was counterbalanced by early discharge among travellers whose abode was far from Ilorin - a transit town between Northern and Southwestern Nigeria - and those with great impatience for results and a prevailing belief in traditional bonesetters as quick healers.[10] Relations apparently take every problem concerning inability to move to bone setters including SCI.

The neurological complications contributed to long hospital stay and to incurring of huge hospital bills, some of which had to be written off by the hospital. In a practice setting without health insurance and spinal centre, this huge economic loss to the victims and the hospital and in unearned income by the victims and the hospital make SCI one of the greatest consumers of health fund in the orthopaedic wards.

Health education could reduce the prevalence of SCI; the vehicle occupants wearing no seat belt, the farmers climbing trees without quality belts, the load bearer carrying heavy load on his head and slipping in the process who could have used a wheel barrow, and trailer or truck conductors who want to exhibit "skills" of jumping on or off a moving vehicle and missing their steps as a result. The special instance of travellers, mostly traders, sitting on top of their goods in open lorries as in five cases from this series is another major area of practicable prevention of disaster if goods and passengers are separated.

Conclusion

SCI are under reported as can be seen in this series and in patients who died at the scene of accident or whose injuries were missed because of other more life-threatening injuries and those that DAMA whose eventual outcomes remained unknown. With improvement in the preventive measures, the economy and the setting up of spinal centres that are well equipped and staffed, more patients should have access to wheel chairs and our environments, homes and the roads, made friendlier to accommodate wheel chair users; the future of SCI victims should be brighter than presently documented. This presents a renewed basis upon which future reviews will be judged especially when it is realised that Odeku and Richard[4] writing from Ibadan, Nigeria in 1971 hoped these changes would manifest long before now. Thirty years after and the situation has remained essentially the same.

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Nasopharyngeal carriage and susceptibility patterns of *Streptococcus Pneumoniae* in Kumasi, Ghana

***Donna M. Denno[1,2], Enoch Frimpong[1], Michael Gregory[3] and Russell W. Steele[3]**

**Harborview Medical Center, MS 359774*
325 Ninth Ave., Seattle, WA 98104 - 2499 USA
Kwame Nkrumah University of Science and Technology, Kumasi Ghana[1]
University of Washington, Seattle, WA[2]
Louisiana State University, New Orleans, Louisiana[3]

Summary

Penicillin resistant *Streptococcus pneunmoniae* poses an increasing problem in paediatrics, particularly in less developed countries. Outside of South Africa, little is known about *S. pneumoniae* susceptibilities in Sub-Saharan Africa. The objective of this study was to determine the prevalence of pneumococcal colonization and antimicrobial susceptibility among children in urban Ghana.

Methods

Nasopharyngeal pneumococcal colonization was examined in 311 children attending a polyclinic for sick children and an immunization clinic in Kumasi, Ghana. Isolates were tested for antibiotic susceptibility to penicillin, tetracycline, erythromycin, chloramphenicol, cefuroxime, cefotaxime, ceftriaxone, and trimethoprim-sulfamethoxazole.

Results

Over half (51.4%) of subjects were colonized with S. pneumoniae and 17% of isolates were resistant to penicillin, all demonstrating intermediate resistance. S. pneumoniae strains were also frequently resistant to trimethoprim-sulfamethoxazole and tetracycline, less so to chloramphenicol and cefuroxime and were almost uniformly sensitive to cefotaxime, cefriaxone and erythromycin.

Conclusions

Our study shows a high rate of pneumococcal nasopharyngeal colonization and a concerning level of penicillin resistance although at a less alarming rate than seen in some other countries. Multiple antimicrobial resistance was also noted especially among drugs readily available and commonly used. These data impact treatment choices in pneumococcal disease. Vaccine may play an important role in disease limitation. An effort to curtail the misuse of antibiotics, by prescription and otherwise, may prevent further increases in resistance rates.

Keywords: ***Pneumococcus, Antimicrobial resistance, Ghana, Less developed country, Developing world***

Résumé

Résistance à la Pénicilline streptocoque pneumonie soulève la question croissante dans le domaine de la pédiatrie, aux pays sous développés en particulier. A l'extérieur de l'Afrique du Sud, on a connue peu de choses en ce qui concerné S. pneumonie et ses susceptibilités on Afrique sous Sahara. L'objet de cette etude est de determiner la prevalence de la pneumocoque colonisation et la susceptibilité antimicrobien parmi les enfants dan la zone urbaine au Ghana.

Methodologie

La Nasopharyngele pneumocoque colonisation a été étudiée chez 311 enfants qui avaient reçu des soins à la polyclinique pour des enfants malades et dans la clinique pour l'immunisation a Kumasi, au Ghana. On avait fait le traitement de texte pour les isolés par rapport à la susceptibilité antibiotique à la pénicilline, tétracycline, érythromycine, chloramphenicole, cefuroxime, cefotaxime, ceftriaxone, et trimethopim-sulfamethoxazole.

Resultats

Plus de la moitic soit 51,4% des patients ont été colonisés avec S. pneumonie et 17% des isolés étaient résistants à la penicilline, avec des manifestations de résistance moyenne. Les entorse S. pneumonie étaient le plus souvent résistants par rapport au trimethoprim - sulfamethoxazole et tétracyline, et moins efficace par rapport aux chloramphénicol et cefuroxime et ils étaient presque uniformement sensitifs aux cefotaxime, ceftriaxonne et érythromycine.

Conclusion

Notre étude témoigne le taux élevé de la pneumocoque nasophargnite colonisation et le niveau touchant de la résistance de la pénicilline qu 'elle soit au taux moins inquiétant plus que l'on avait assisté dans d'autres pays. La résistance multiple antimicrobien a été également noté parmi les drogues facilement disponibles et ordinairement utilisées en particulier.

Ces données impact dex choix de traitement en ce qui concerne la maladie pneumocoque. La vaccine pourrait jouer un rôle prépondérant dans la limitation des maladies. Des efforts pour réduire l'abus des antibiotiques par des ordonnance, pourrait empêcher de plus des accroissements dans les taux de la résistance.

Introduction

Streptococcus pneumoniae continues to be a significant cause of morbidity and mortality in children. This is particularly true in less developed areas including sub-Saharan Africa where poverty often prohibits patients from receiving appropriate care. Penicillin has provided efficacious and relatively inexpensive therapy for the treatment of pneumococcal disease for the past 50 years. However, increasing rates of penicillin resistance have been reported worldwide. Furthermore, those with high level resistance are frequently resistant to other classes of antibiotics. However, outside of South Africa, little is know about *S. pneumoniae* susceptibilities in sub-Saharan Africa. Our study was undertaken to determine the current prevalence of pneumococcal colonization and to assess the antimicrobial susceptibility of these organisms among children in an urban West African setting.

Methods

Study Population

Komfo Anokye Teaching Hospital (KATH) is a large inpatient and outpatient facility serving the population of Kumasi, Ghana (population approximately 600,000). Children aged 6- 12 months attending KATH Polyclinic for sick visits and attending KATH Immunization Clinic were selected for sampling. This age range was chosen because it reflects the majority of children seen for vaccinations in this setting. The study was approved by the Ethics Committee of the School of Medical Sciences, Kwame Nkrumah University of Science and Technology in Kumasi. After informed consent was obtained from the parent or guardian, a short survey was administered in the vernacular language, Twi. Subjects were asked about their symptoms as well as use of antibiotics in the week prior to coming to clinic.

* Corresnondence

Collection, isolation and susceptibility testing

Culture material was collected from the posterior nasopharyngeal wall with a wire mini-tip collection and transport system (Culturette, Becton Dickinson Microbiology Systems, Cockeysville, MD). Specimens were inoculated onto sheep blood agar plates within an hour of collection. Plates were incubated for 48 hours in a 5% carbon dioxide environment. *S. pneumoniae* isolates were identified based on colony morphology with confirmation using Optochin (ethyl hydrocuprein HCl) discs (BBL, Becton Dickinson Microbiology Systems).

Isolates were then screened for susceptibility to penicillin with a 1µg oxacillin disk (BBL, Becton Dickinson Microbiology Systems) using Kirby-Bauer disk diffusion method on Mueller-Hinton agar plates with sheep blood. A zone of inhibition of less than 20mm indicated resistance. The strains were also tested for susceptibility using 30µg chloramphenicol, 15µg erythromycin, 30µg tetracycline and 30µg cefotaxime disks (Britannia, Buenos Aires, Argentina). The following National Committee for Clinical Laboratory Standards (NCCLS) were used to determine sensitivity in mm (resistant, intermediate, sensitive): oxacillin, ≤19, --, ≥20; chloramphenicol, ≤ 12, 13-17, ≥ 18; erythromycin, ≤13, 14-22, ≥23; tetracycline, ≤14, 15-18, ≥19; cefotaxime, ≤14, 15-22, ≥25. Oxacillin resistant strains were initially stored on glass beads at -30°C for later E-test minimum inhibitory concentration (MIC) testing, since the E-test strips were not available at the beginning of the study. After E-tests strips were obtained, all resistant isolates were tested immediately for the following antibiotics: ceftriaxone, penicillin, cefuroxime, chloramphenicol, erythromycin, and trimethoprim-sulfamethoxazole (TMP-SMX) by E-test method as previously described.[1] *S. pneumoniae* E-test MIC designations (susceptible, intermediately resistant, and resistant) were defined as follows (in microgram per milliliter): cefuroxime, 0.5 or less, 1,2 or more; erythromycin, 0.5 or less, 1, 2 or more; chloramphenicol, 4 or less, --, 8 or more; TMP - SM X, 0.5 or less, 1 to 2, 4 or more, ceftriaxone, 0.5 or less, 1,2 or more; and penicillin, less than 0.06, 0.06 to 1.0, 2 or more.

Statistical methods

Data were recorded on precoded case report forms and information entered onto a personal computer. Statistical analysis was performed by Chi square.

Results

During a 3-month period (June to August 1996), 311 specimens were collected. One hundred forty-seven (47.3%) were obtained from children attending immunization clinic with the remainder attending the polyclinic for sick children. There was an even distribution of males (158) and females (153).

Approximately half of the subjects had nasopharyngeal *S. pneumoniae* colonization (Table 1). Nine (6.0%) pneumococcal isolates did not survive prior to sensitivity testing. Of the remainder, over one-third tested oxacillin resistant. The carriage and oxacillin resistant rates did not differ significantly by sex or by type of clinic attended. Carriage rates were affected by antibiotic use in the week prior to the clinic visit. Those who had used antibiotics in the week prior but not the 24 hour period prior to attendance had the lowest pneumococcal carriage rate (25.0%) compared with those who had used antibiotics in the prior 24 hours (36.8%) and those who had not used antibiotics in the prior week at all (52.0%) ($p<0.5$). Oxacillin resistance rates, however, were not affected by antibiotic usage. Neither carriage rate nor sensitivity patterns were influenced by reported symptoms including respiratory illness. Thirty seven percent of pneumococcal isolates overall were oxacillin resistant by disk diffusion method.

Disk diffusion testing revealed that the *S. pneumoniae* strains were also frequently resistant to tetracycline, less so to chloramphenicol and were almost uniformly sensitive to cefotaxime and erythromycin (Table 2). While there was not a significant correlation between resistance to oxacillin and chloramphenicol there was between oxacillin and tetracycline ($p<0.05$).

Twenty-three (43%) of the oxacillin resistant strains were subsequently further subjected to MIC testing using the E-test method. Nine (39%) of these were confirmed penicillin resistant all with an intermediate degree of resistance. There was a high degree of resistance to trimethoprim-sulfamethoxazole (TIMP - SMX), less so to chloramphenicol and cefuroxime and 100% sensitivity to erythromycin and ceftriaxone (Table 3).

Discussion

Antimicrobial resistance in *S. pneumoniae* is becoming an alarming problem worldwide. There have been a number of studies addressing the issue in all the continents but generally less information has been reported from less developed countries especially in sub-Saharan African outside of South Africa.[2-6] Because of widespread unregulated antibiotic use one might expect problems, with antimicrobial resistance in such settings.

Before drawing conclusions, limitations of this study include: (1) Due to logistic difficulties in this developing country setting, only 43% of oxacillin resistant samples were available for further testing by the E-test method. However, these isolates should represent a random sample of the oxacillin screened strains as antimicrobial susceptibility should not impact the survival of the organism in storage. Despite this limitation, E-test analysis results were comparable to other similar studies.[7] (2) Our study population was limited to 6-12 month olds because the majority of children attending immunization clinic are in this age range and the same age group was studied in the polyclinic group. However, despite the

Table 1 Demographic/clinical characteristics and *S. pneumoniae* nasopharyngeal colonization/resistance patterns

	Total Study Subjects (n=311)	Pneumococcal colonization			***Oxacillin* resistance**		
	%	No	%		No	%	
Total Study subjects	--	151	51.4	ns	53	37.3	ns
Male/female subjects	50.8/49.2	75/76	47.5/49.7	ns	27/26	37.5/37/1	ns
Immunization clinic/ polyclinic attendees	47.3/52.7	66/85	44.9/51/8	ns	26/28	44.1/33.7	ns
Antibiotic use							
<24 hours	12.2	14	36.8	8	61.5		
>24 hours, <1, week	6.4	5	25.0	p<.05	1	25.0	ns
none 78.5	127	52.0		43	35.8		
unsure	2.9	--	--	--	--	--	--
Respiratory symptoms in polyclinic attendees							
present	38.7	28	45.9		9	32.1	
absent	61.3	57	55.3	ns	19	33.9	ns

Table 2 Susceptibility to multiple antimicrobial agents by disk diffusion method

	Antimicrobial susceptibility or resistance (%)									
Antimicrobial	**All isolates (n=142)**			**Oxacillin resistance isolates (n=53)**			**Oxacillin susceptible isolates (n=89)**			
	S	I	R	S	I	R	S	I	R	
Oxacillin	62.7	--	37.3	--	--	--	--	--	--	
Tetracycline	34.5	2.1	63.4	22.6	0	77.4	41.6	3.4	55.1	p<.05
Chloramphenicol	86.6	0	13.3	86.8	0	13.2	86.5	0	13.5	ns
Erythromycin	99.3	0.7	0	100	0	0	98.9	1.1	0	ns
Cefotaxime	99.3	0	0.7	98.1	--	1.9	100	--	0	ns

Table 3 Susceptibility to multiple antimicrobial agents for oxacillin-resistant *S. pneumoniae* by E-test method

Antimicrobial susceptibility or resistance (%) (n=23)			
Antimicrobial	**S**	**IR**	**R**
Penicillin	61.9	39.1	0
Ceftriaxone	100	0	0
Chloramphenicol	91.3	--	8.7
Erythromycin	100	0	0
Trimethoprim Sulfamethoxazole	39.1	13.0	47.8
Cefuroxime	95.7	4.3	0

S, Susceptible; IR, intermediately resistant; R, resistant

possibility of higher carriage rates than in older children, [8,9] resistance rates beyond infancy would probably be similar.

Despite these limitations these data provide an idea of the pneumococcal carriage rate and susceptibility patterns in this West African setting. *S. pneumoniae* strains that colonize the nasopharynx may be associated with invasive disease.[10] Approximately half of our study sample had pneumococcal nasopharyngeal colonization which compared with other studies which have demonstrated approximately 25-50% colonization.[12-13.]

Of the 23 oxacillin resistant isolates available for further testing by E-test, 9(39%) were penicillin resistant, all demonstrating intermediate resistance. By extrapolating to all of the oxacillin resistant strains, the overall penicillin resistance rate as determined by E-test was 17%. Four to 70% resistance to penicillin has been reported from other areas of the world.[14-15] Forty percent of community acquired isolates from sick children in South Africa demonstrated penicillin resistance from 1989-1991.[6]

While specimens were frequently resistant to tetracycline (65% by disk diffusion) and TMP-SMX (61% by E-test) there was a lower rate of resistance to chloramphenicol (13% by disk diffusion and 9% by E-test) and cefuroxime (4% by E-test) and greater than 99% sensitivity to erythromycin (disk diffusion and E-test), ceftriaxone (disk diffusion and E-test) and cefotaxime (disk diffusion). This is consistent with the wide use of amoxicillin, tetracycline and sulfa drugs in Ghana on a prescription and non-prescription basis while erythromycin has been less commonly used. Cephalosporins have only recently been introduced into the country, are still not widely available and when obtainable are often prohibitively expensive. At the time of this study they were not on the national formulary. However, because penicillin resistance is mediated by penicillin binding proteins which can also cause resistance to cephalosporins, decreased susceptibility to the latter may develop as the degree of penicillin resistance increases. Compared to studies in Spain, Hungary and Pakistan, the tetracycline and TMP-SMX data compare to areas which have a high incidence of penicillin resistant *pneumococcus* with multiple drug resistance.[3,16,17] In South Africa, as in this study, resistance to chloramphenicol and erythromycin is not as common as in these other areas although in South Africa tetracycline resistance is also not as common as in our study and these other countries.[6]

While our study suggests a concerning level of penicillin resistance among pneumococcal strains it is not at the alarming level seen in other settings. The possible prevention of future increases in resistance is important. Frequent use of antimicrobials has been found to affect resistance rates[18-20] and carriage rates[21]. Widespread and indiscriminate use of antibiotics, both by prescription or otherwise, is the case in Ghana as in many other developing countries. The rational use of antibiotics must be encouraged among physicians, pharmacists and the public.

Pneumococcal vaccine may play an important role in limiting disease secondary to penicillin resistant pneumococcus, but more information regarding serotyping in this setting is needed.

These findings also raise the issue of management of infections caused by pneumococcus. Therapy is influenced by the availability of susceptibility testing, the severity of illness, clinical response, and availability of antimicrobial agents. Culture and sensitivity testing is available (depending on availability of reagents as well as power and water supply) at KATH, however, in most areas of Ghana it is not available. For mild to moderate pneumonia, amoxicillin or penicillin remains the mainstay of treatment, but in higher doses where pneumococcal resistance is likely.[22] Again, high dose penicillin can be used to treat bacteremia without meningitis due to organisms of intermediate susceptibility.[15] In most cases, serum and most tissue levels of penicillin will exceed the MIC of the organism. However, it is more difficult to reach high enough levels in the cerebrospinal fluid. It has been suggested that chloramphenicol may not provide adequate therapy for penicillin resistant pneumococcal meningitis as well.[2-24] Most experts recommend empiric treatment with a third generation cephalosporin for meningitis in settings with penicillin resistant pneumococcus. However, in most areas of Ghana third generation cephalosporins are not available. In Kumasi, they can only be purchased in private pharmacies at a prohibitive cost because these drugs are not on the national formulary. While third generation cephalosporins would be useful in treating patients with otherwise resistant microbes, great care must be taken so that indiscriminate usage does not lead to reduced susceptibilities of these antimicrobials as well.

There is an alarming concern in other countries with multiple resistant pneumococci. The current policy for the empiric treatment of children with menigitis at KATH is high dose penicillin combined with chloramphenicol. Clinical trials would be useful to determine definitive recommendations for the treatment of CNS and non -CNS infection with penicillin resistant pneumococci. Continued surveillance to assess the prevalence of *S. pneumoniae* carriage, disease and resistance patterns is essential.

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A controlled trial of modified electroconvulsive therapy in Schizophrenia in a Nigerian Teaching Hospital

*D. I. Ukpong, R. O. A. Makanjuola and O. Morakinyo
Department of Mental Health College of Health Sciences
Obafemi Awolowo University Ile-Ife, Osun State, Nigeria,

Summary

The efficacy of ECT in the treatment of Schizophrenia was investigated in a double blind controlled trial. The ICD - 10 criteria for Schizophrenia were fulfilled by the 20 patients who entered the trial. Consecutive individuals who satisfied the inclusion criteria were randomly allocated to a course of (bilateral) six real or simulated ECTs each as applicable. Sixteen patients completed the ECT treatment and 20 weeks follow up period. Analysis of measures of clinical change (BPRS and SANS Scores) showed that both groups of patients improved, but the improvement of patients receiving ECT was not significantly greater than that of the control group.

Keywords - ***Schizophrenia, Real ECT, Simulate ECT, Outcome.***

Résumé

L'efficacité de ECT dans le traitement de-Schizophrénie a été étudie à travers un rest dirigé à double insu.

Le ICD- 10 critères pour Schizophrénie étaient accomplis par les patients qui se sont inscris pour cette épreuve.

Individus consécutifs qui ont rempli les conditions du critère étaient choisi au hasard pour le cours sur (bilatéral) six vrai ou faux ECT chacun comme applicable. 16 patients ont complété le traitement à travers le ECT et une période de 20 semaines de l'examen de contrôles à long terme. L'analyse de la mesure du changement clinique que les deux groupes de patients manifestaient une amélioration; mais le progrès des patients qui reçoivent ECT n'était pas sensiblement élevé plus que celui du groupe de témoin.

The place of Electroconvulsive Therapy (ECT) in the treatment of schizophrenia is still controversial. Previous studies evaluating ECT and schizophrenia, have been extensively reviewed by various authors such as Kendell[1] and Taylor[2]. who argue that it has no value especially in the management of chronic schizophrenia. Although earlier studies were variously criticised as lacking in clear diagnostic definition and inadequate use of quantitative tools to evaluate results,[3] there had been a few well designed studies in recent time that satisfy contemporary research criteria.

ECT is often combined with neuroleptic drugs in the treatment of schizophrenia, and Taylor and Fleminger,[4] Brandon et al[5] and Abraham and Kulhara[6] have reported well designed studies describing the usefulness of ECT - drugs combination in schizophrenia in the short term. The three studies compared ECT drugs with stimulated ECT drugs. They concluded that the initial improvement witnessed at the beginning of treatment was lost with the passage of time.

In developing countries, schizophrenia is often routinely treated with ECT.[7] Electroconvulsive therapy is still widely used to treat psychiatric patients in Nigeria, [8,9] and even though depression is a common indication for its application, ECT appears to be more widely used for schizophrenia in Nigeria than in the developed nations,[8] without any reported trial of its efficacy in the management of this disorder. It is therefore necessary to find out whether this extensive use of ECT in schizophrenic patients in Nigeria can be justified in terms of improved clinical outcome. The present study was undertaken to fill the gaps created by this dearth of information.

Methodology

The study took place at the Psychiatric unit of the Wesley Guild Hospital, Ilesa, Osun State, the larger of two Psychiatric units of the Obafemi Awolowo University Teaching Hospital Complex, which is responsible for the health care of a population of over one million people. Consecutive patients satisfying the following criteria were included in the study

(a) Fulfilled ICD - 10 criteria for a definite diagnosis of Schizophrenia
(b) Had not received ECT before
(c) Duration of illness not greater than two years
(d) Age at onset of illness not more than 45 years
(e) No history of organic cerebral disease
(f) No significant physical illness.

Patients were allocated to either real ECT or simulated ECT group by ballot without the author's knowledge after they and their relations had given informed consent. Patients received a standard dose of chlorpromazine (300mg daily) for the study period lasting twenty weeks, but the chlorpromazine dosage could be adjusted by the responsible consultant if there was dire need. For some this meant medication for the first time ever or after an interval, for a few continuation of medication and for some a decrease in dose. There was a minimum period of two weeks for patients to be stabilized on their medications before commencement of ECT treatment.

All the patients, except three (one in the simulated ECT group and two in the ECT group) were admitted to hospital. The admission period was for the duration of the ECT treatment.

All patients received a course of (bilateral) six real or six simulated ECTs (twice weekly) each as applicable. Atropine (0.6 - 1.2mg) was given intravenously before the procedure and anaesthesia was induced by thiopentone sodium (200 - 300 mg) followed by suxamethonium (50-100mg). ECT was administered by an ECTRON Duopulse constant current machine delivering 40 pulses per second for 3 seconds via two separate electrodes one in each hand placed in the bitemporal position. To ensure that fitting had occurred, one forearm was always isolated by inflating a blood pressure cuff to above systolic pressure before administering the muscle relaxant. The isolated forearm did not become paralyzed, so the arm component of the siezure could easily be observed. This was recorded for all patients in the Experimental group. The assessor was blind to the treatment groups. The first author blindly assessed all patients before the beginning of the trial using the 19-item WHO modification of the Brief psychiatric Rating Scale (BPRS)[11] the scale for the assessment of Negative Symptoms (SANS)[12], and the Clinical Gobal Impression Scale (CGIS).[13] The assessments were repeated at the end of 2, 4, 6, 8, 12, 16 and 20 weeks.

Categorical variables were analysed with the Fisher's Exact test and the t-test was used to compare means. All the t-tests were one tailed.

Results

There were 20 patients at the start of the trial of which only 16 completed the ECT treatments and twenty weeks follow up period. Of the 4 patients who did not complete trial 2 were in the ECT group, both males, and 2 were in the simulated ECT group, both females.

The analysis and results that follow pertain only to the 16

* *Correspondence*

patients that completed the trial.

The two groups did not differ significantly on socio-demographic characteristic such as age, sex, marital status and religion or in clinical characteristics such as duration of illness, subtypes of Schizophrenia and number of previous episodes (table 1). They did not also differ in the initial BPRS, SANS and severity of illness (CGIS) scores.

Table 1 Socio-demographic and clinical characteristics of patients

	Real ECT	Simulated ECT	Absconders Real ECT	Absconders Sim. ECT	Remarks
No of patients	9	7	2	2	
Age (years)			25 & 40	30 & 40	t = 0.85 df = 14NS
Mean	27.7	24.3			
SD	10.3	5.5			
Male/Female	4/5	4/3	both males	both females	Fishers Exact Test P = 0.5 NS
Married/ Not Married	8/1	5/2	one married one divorced	both married	Fishers Exact Test P = 0.40 NS
Duration of current illness (months)					
6 months & Under	6	6			
Over 6 months	3	1	2	2	≤6 months VS > 6 months
Mean (SD)	8.4(9.19)	5(6)	14	13	t = 0.8 df (14) NS
No of previous episodes of illness					
One	4	4			Previous VS No
Two	1	0			Previous Episode
None	4	3	2	2	Fishers Exact p = 0.385 NS
Sub types					
Paranoid	5	2	2	2	Paranoid VS
Catatonic	3	1			Non Paranoid
Hebephrenic	1	0			Fishers Exact
Undifferentiated	0	4			P = 023 NS
Means Scores at week 0					
BPRS	22.33(7.83)	19.43(7.28)			
SANS	9.33(6.54)	8.29(5.41)			
BPRSP	10.67(8.65)	7.86(4.74)			
CGIS	5.1(0.78)	4.7(0.76)			
Medication taken during Trial period. (Mean chlopromazine) dosage in mg.	306.5	285			

BPRS - Brief Psychiatric Rating Scale
SANS - Scale for Assessment of Negative Symptoms
BPRSP - Brief Psychiatric Rating Scale (Positive Symptoms)
CGIS - Clinical Global Impression Scale

Table 2 Inter-group comparison of BPRS (Total) Scores

ECT group (n = 9) Week	Mean	SD	SIM. ECT (n = 7) Mean	SD	(df = 14) t[1]	p
0	22.33	(7.83)	19.43	(7.28)	0.71	NS
2	6.56	(6.23)	8.29	(5.47)	0.55	NS
4	3.67	(4.21)	4.14	(3.85)	0.22	NS
6	7.22	(10.47)	5.19	(7.04)	0.41	NS
8	1.33	(2.50)	3.14	(3.54)	1.07	NS
12	1.11	(1.69)	1.43	(1.81)	0.34	NS
16	1.00	(3.00)	1.57	(4.16)	0.28	NS
20	1.00	(3.00)	1.29	(3.42)	0.16	NS

1 one - tailed test

The response to treatment as indicated by the BPRS scores is shown in fig. 1 and table 2. There was a reduction in BPRS scores at the 2nd and 4th weeks for both groups but inter-group comparison of BPRS scores at intervals did not show significant differences.

Apart from the total BPRS scores, a composite score of positive symptoms was derived from the scores for conceptual disorganization, grandiosity, suspiciousness, hallucinatory behaviour and unusual thought content.[14]

Table 3 Inter-group Comparison of BPRS (Positive) Scores

ECT group (n = 9) Week	Mean	SD	SIM. ECT (n = 7) Mean	SD	(df = 14) t[1]	p
0	10.67	(8.65)	7.86	(4.74)	0.78	NS
2	4.5	(5.13)	3.34	(3.60)	0.46	NS
4	1.22	(1.86)	2.43	(3.73)	0.72	NS
6	2.78	(5.91)	4.43	(4.16)	0.61	NS
8	0.44	(1.33)	2.00	(3.46)	1.05	NS
12	0.33	(1.00)	1.00	(1.73)	0.85	NS
16	0.44	(1.33)	1.57	(4.16)	0.64	NS
20	0.44	(1.33)	1.29	(3.40)	0.58	NS

1 one - tailed test

The means and standard deviations of the BPRS positive scores (BPRSP), for both groups are shown in table 2. Inter-group comparison of BPRSP means scores at intervals from week 0 to week

Table 4 Inter-group comparison of SANS SCORES

ECT group (n = 9)			SIM. ECT (n = 7)		(df = 14)	
Week	Mean	SD	Mean	SD	t[1]	p
0	9.33	(6.54)	8.29	(5.41)	0.32	NS
2	2.78	(3.99)	4.57	(5.83)	0.65	NS
4	3.78	(6.30)	1.34	(2.70)	0.95	NS
6	4.11	(5.46)	1.00	(2.24)	1.46	NS
8	1.22	(2.99)	0.29	(0.76)	0.84	NS
12	1.22	(3.67)	0.00	(0.00)	0.94	NS
16	0.67	(2.00)	0.00	(0.00)	0.95	NS
20	0.67	(2.00)	0.00	(0.00)	0.95	NS

1 one - tailed test

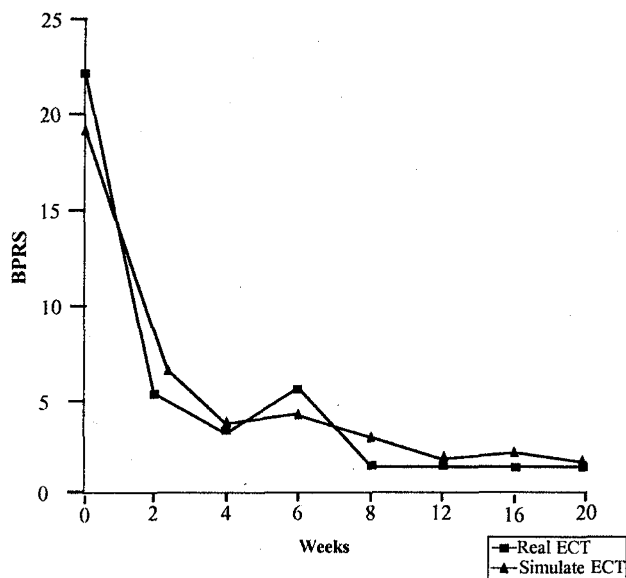

Fig. 1 ***Shows mean Bprs against time (in weeks) for both groups***

20 did not show any significant difference (p>0.05) even though both groups showed a progressive reduction in BPRSP scores from week 0 to week 20.

The means and standard deviations of SANS scores for both groups are shown in table 3. Both groups showed a progressive reduction in SANS scores over time even though inter-group comparison of scores at intervals did not yield any significant difference.

There was no difference between the real ECT group and he simulated ECT group when the CGIS scores were analysed.

Discussion

The study demonstrated that in two groups of patients comparable for age, sex, and duration of illness, the group receiving ECT - neuroleptic did not show any significant advantage over a control group that received neuroleptics alone. There was an improvement in positive as well as negative symptoms in the two groups. The two groups were also comparable in the amounts of drugs consumed during the study period.

The results of this study are quite different from those of Taylor and Fleminger[4], Brandon and co-workers[5] and Abraham and Kulhara.[6]

They had documented the widely held impression that the most important advantage of ECT is in the first 4 weeks; and that this advantage evens out at follow-up. Even though the BPRS scores dropped at the 2nd and 4th week for each group in this study inter-group comparison of scores did not show significant difference.

For this study we decided to limit the number of our ECT application to six to reduce the small although possible risk involved with the treatment and because of the ethical consideration of subjecting the control group to anaesthesia without subsequent ECT. Although no major side effects were recorded for the patients, 4 of them (44%) in the real ECT group complained of headache.

There is no evidence that a fixed number of treatments should be used for ECT, although the typical range is 6 to 12 treatments.[15] Other workers in Nigeria had indicated that six ECTs are adequate for the treatment of most cases of schizophrenia.[8,16]

One important difference of this study from the other trials is that the ICD - 10 criteria was used to make the research diagnoses; whereas the other authors, used the present State Examination CATEGO diagnoses. It is considered highly unlikely that this could explain the different results found in this study.

Miller, Clancy and Cummings[17] maintained that there was no difference between ECT treatment and placebo, so also Greenblatt and co-workers,[18] Smith and contemporaries[19] and Childers.[20] The study by May [21], and his subsequent review in[22], failed to demonstrate the superiority of ECT when compared to drug therapy.

The Royal College of Psychiatrist's Memorandum[23] stated that ECT had no general value when compared to neuroleptic medication.

The present study was limited by the small sample size of twenty patents. Small sample sizes were also observed in previous studies investigating the efficacy of ECT in schizophrenia as reflected in those of Taylor and Fleminger[4] in which 20 patients completed the trial, in that of Brandon and co-workers[5], 17 patients completed the trial out of 19, and in that of Abraham and Kulhara[6], 22 patients completed the trial.

A multi-centre trial in Nigeria in future is likely to overcome this limitation of small example size.

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QRS Axis deviation in Nigerian women during normal pregnancy

*N. N. Iwobi and D. V. Dapper
Department Of Human Physiology
College of Health Sciences, University of Port Harcourt,
P.M. B. 5323, Port Harcourt, Nigeria.

Summary

The effect of pregnancy on the heart rate, respiratory rate, QRS axis and QRS complex duration of the ECG was investigated in 41 pregnant compared to 39 non pregnant age and height matched Nigerian subjects.

Results obtained show that pregnancy had no significant effect (p>0.05) on heart rate, respiratory rate and QRS complex duration of the ECG. However, the QRS axis showed significant (p<0.05) left ward deviation in pregnant subjects compared to non-pregnant subjects. The magnitude of the deviation apparently increases as pregnancy progresses. In addition, chi-squared analysis revealed significant association (p<0.001) between the incidence of left axis deviation in pregnant subjects compared to non-pregnant subjects.

Our findings highlight the need for caution in the interpretation of the ECG during the antenatal period.

Keywords: *ECG, QRS axis, Pregnancy.*

Résumé

Les effet de la grossesse sur le rythme du cœur, rythme de respiration, axe QRS et le QRS durée compliquée de ECG ont été étudiés chez 41 femmes enceintes en comparaison de 38 femmes non enceintes sujets nigériane mais avec l'âge et la taille normale.

D'après le résultat, la grossesse n'avait pas un effet remarquable (P>O,O5) sur le rythme du cœur, le rythme de respiration et QRS durée compliquée de ECG. Cependant, l'axe QRS avait indiqué la direction gauche déviation remarquable (p>O,O5) chez les sujets, femmes enceintes, en comparaison de femmes non enceintes. Apparemment, la valeur de la déviation augmente autant que la grossesse développe.

En outre, l'analyse chi-carré a indiqué une association remarquable (p<O,OOl) entre la fréquence de la déviation axe gauche chez les sujets enceintes en comparaison des sujets non enceintes.

Nous sommes arrivé à la conclusion que c'est nécessaire d'avoir la prudence dans l'interprétation du ECG pendant la période anténatale.

Introduction

The Electrocardiogram (ECG) a graphical record of the electrical potential caused by the excitation of the cardiac muscle has been shown to be affected by several physiologic factors. These factors include, race, age, sex, height, weight, nutritional status and chest circumference [1,2,3,] amongst several others.

Expectedly, the ECG like other cardiovascular parameters could be affected by the physiological changes induced by pregnancy. Amongst pregnant Caucasian women, a left ward deviation of the QRS axis was initially reported by Carr and Palmer in 1932 [4] as a normal characteristic occuring especially in the third trimester. Similar studies amongst pregnant Caucasian women by Hollander and Crawford in 1942 [5] gave a mean left ward deviation of 15°, with some individual subjects showing deviations of as much as 28°. This deviation they attributed to the transverse displacement of the heart and also to its clockwise rotation around its long axis due to the effect of the gravid uterus. Later, reports by Zatuchni (1951) [6], Wanger et al (1964) [7], Carruth et al (1981) [8] and Wenger (1982) [9] and several other workers confirmed the left ward deviation of the QRS axis, especially in the third trimester of pregnancy. Carruth et al in 1981[8] reported a mean QRS axis of 49°, 46°, 40° and 44° in the first, second, third trimesters of pregnancy and immediate post-natal period respectively. In addition, increases in heart rate [8] and cardiac output [10] have been reported as accompanying pregnancy.

Clearly changes in the QRS axis of the ECG have been confirmed in normal pregnant Caucasian women. Similar studies on pregnant women of Negro origin are relatively scarce. In this study, we describe changes in the QRS axis of the ECG in Nigerian women during the course of normal pregnancy. This we hope would provide insight into the electrocardiographic changes during the course of normal pregnancy in Nigerian women and assist in the interpretation of the ECG in the antenatal period.

Materials and methods

Forty one apparently healthy pregnant subjects from several states of southeastern Nigeria were selected for the study. A group of 39 healthy non-pregnant female subjects served as control. The control subjects were matched age, weight and height with the study group. Subjects with antecedent history of cardiovascular, endocrine, metabolic, neurologic or nutritional disease were excluded from the study. Each subject gave informed consent before recruitment into the study.

The study was conducted at the antenatal clinics of selected government hospitals in several states of south eastern Nigeria. Traditional birth attendants were also used to obtain subjects from rural areas. All the pregnant subjects had at least three ECG records taken at the first, second and the third trimesters of pregnancy. For the study, the first trimester was considered to end at the thirteenth week, the second trimester to end at the twenty-sixth week and the third trimester to end at forty weeks. All ECG records were taken during routine antenatal visits between 9 a.m. and 12 noon each day. On arrival the height and weight of each subject were determined using the SECA scale. The subject was subsequently allowed to rest comfortably for at least 30 minutes supine on an examination couch before blood pressure, respiratory and pulse rates were determined by standard clinical procedures. The ECG leads were then fastened and secured. All ECG records were obtained using a portable ink-writing single channel ECG machine (MEDICOR ELECTROCARDIOGRAPH MODEL MR-11, MEDICOR WORKS HUNGARY). A recording speed of 25 mm/second was used with a recorder calibration of 10 mm/mV stylus deflection. For subjects with high precordial QRS voltages, the recorder calibration was readjusted to 5mm/mV stylus deflection, to ensure the QRS voltage was well recorded. The standard 12 lead ECG was recorded in all subjects. The electrical axis of the heart was determined as described by Gazes 1990[11]. Routine haemoglobin concentration and urinalysis for protein and sugar were determined using the cyanomethaemoglobin method[12] and clinical urinalysis strips respectively. Heart rate was determined from the interval between two QRS complexes.

The results obtained are as presented in Tables and Figures. Statistical analysis was determined using the chi-squared test and the Z-test.

Results

Table 1 shows results of age, height, blood pressure, heart rate, respiratory rate, QRS axis and QRS complex duration obtained

* *Correspondence*

for both non-pregnant and pregnant subjects. Values for all the parameters determined, were within normal physiological limits.

There were no significant differences (p>0.05) in the age, height, systolic blood pressure, diastolic blood pressure, heart rate and respiratory rate between the two groups under study, though pregnant subjects had lower systolic and diastolic blood pressure and a higher heart and respiratory rate compared to non pregnant subjects. However, the QRS axis showed significant differences (p<0.05) between the two groups. The mean QRS axis among pregnant subjects of 44.00 ± 23.0° was significantly lower (p<0.05) than the value obtained for non pregnant subjects which was 56.00 ± 11.00°; implying a left ward deviation of 12.0° in the mean QRS axis among pregnant subjects compared to non pregnant subjects. The duration of the QRS complex was not significantly different (p>0.05) amongst the two groups, though pregnant subjects had a shorter QRS complex duration.

Table 1 Age, Height, Blood pressure, Heart rate, Respiratory rate, QRS axis and duration in pregnant compared to non pregnant subjects

	Non-Pregnant Subjects (N=39)	Pregnant subjects (N=41)	Significant difference
Age (years)	24.12 ± 5.0 (20 - 32)	26.71 + 6.92 (20 - 31)	No (P > 0.05)
Height (cm)	161.6 ± 4.61 (152 - 168)	159.0 ± 9.57 (150 - 168)	No (P > 0.05)
Systolic Blood Pressure (mmHg)	117.5 ± 9.71 (90-120)	103.16 ± 10.79 (90 - 110)	No (P>0.05)
Diastolic Blood Pressure (mmHg)	71.6 ± 7.16 (60 - 80)	62.3 ± 8.86 (55 - 70)	No (P>0.05)
Heart rate (Per minute)	70.0 ± 10.0 (62 - 82)	74.0 ± 10.5 (53 - 107)	No (P>0.05)
Respiratory rate (Per minute)	20.0 ± 4.0 (18 - 22)	25.0 ± 4.0 (18 - 28)	No (P>0.05)
QRS axis (degrees)	56.0 ± 11.0 (30 - 90)	44.0 ± 23.0 (0 - 90)	Yes (P<0.05)
QRS Complex duration (seconds)	0.064 ± 0.02 (0.043 - 0.106)	0.053 ± 0.07 0.015 - 0.120)	No (P>0.05)

All values Mean ± SD, range in parenthesis

Table 2 Changes in QRS axis, Heart rate and Respiratory rate during the trimesters of pregnancy and in non pregnant subjects

		Pregnant Subjects		
	Non-Pregnant Subjects (N=39)	First Trimester (N=41)	Second Trimester (N=41)	Third Trimester (N=41)
QRS axis (degrees)	56.000 ± 11.00 (30 - 90)	54.00 ± 16.19 (30 - 90)	41.00 ± 23.82 (0 - 60)	28.00 ± 24.16 (0 - 60)
Heart rate (/min)	70.00 ± 10.00 (62 - 82)	74.81 ± 12.34 (53 - 107)	73.21 ± 10.47 (60 - 94)	73.67 ± 6.6 (63 - 83)
Respiratory rate (/min)	20.00 ± 4.00 (18 - 22)	24.64 ± 4.15 (18 - 38)	25.50 ± 3.23 (20 - 32)	24.57 ± 4.26 (24.28)

All values mean ± SD; range in parenthesis.

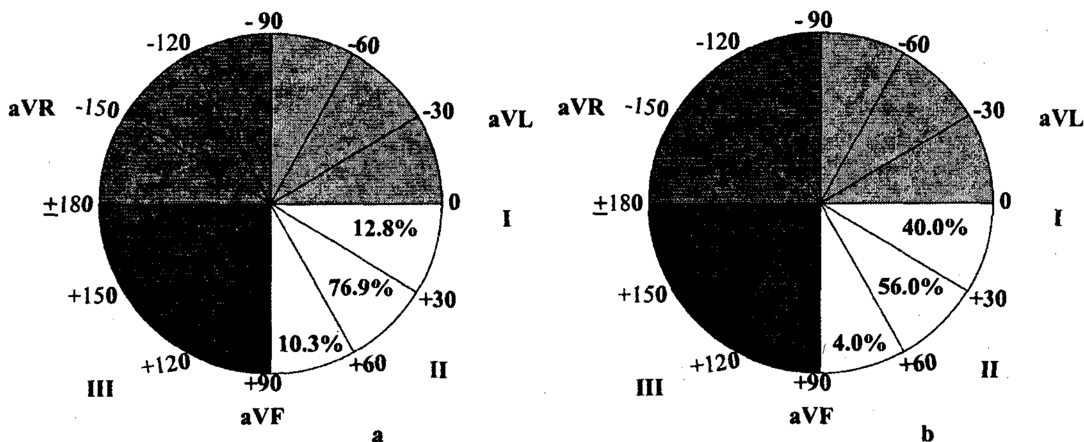

Fig.1 ***Percentage distribution of QRS axis in non-pregnant (a) and pregnant (b) subjects.***

Table 2 shows the values of the QRS axis, heart rate, and respiratory rate, in all pregnant subjects during the trimesters of prenancy and in non-pregnant subjects. Analysis of variance showed statistically significant ($p < 0.05$) reduction of the mean QRS axis during the course of pregnancy. However, there were no significant changes ($p>0.05$) in both heart rate and respiratory rate during the course of pregnancy. Thirty eight (92.7%) pregnant and 33(84.6%) non-pregnant subject had normal sinus rhythm. Sinus bradycardia was observed in 1 (2.4%) pregnant and 6 (15.4%) non-pregnant subjects. Only 2 (4.85%) pregnant subjects had sinus tachycardia. Ectopic beats and incidences of cardiac arrhythmia were absent in our pregnant subjects.

As shown in Figure 1, all subjects had QRS axis within normal of the Hexiaxial reference system [11]. However, a greater percentage i.e. 40% of pregnant subjects had a mean QRS axis deviated leftward i.e. between 0° and +30° compared to 12.8% of non pregnant subjects. The percentage distribution of the mean QRS axis for both non-pregnant and pregnant subjects is as shown in the Figure. Chi-squared analysis revealed significant association between pregnancy and the percentage distribution of the mean QRS axis ($p<0.001$).

All non pregnant subjects had haemoglobin concentrations of within normal ranges [13] and no pregnant subject had a haemoglobin concentration less than 10.0g/dl. Urine analysis for protein and sugar was negative for all non pregnant subjects, an occassional trace of protein was however detected in some pregnant subjects.

Discussion

The present study presents data of a left ward deviation of the QRS axis in Nigerian women during the course of normal pregnancy. To the best of our knowledge previous reports in this regard are relatively scarce, most reports have focused on ECG changes in young [2] healthy adult[1,14] Nigerians.

The magnitude of the left ward deviation of the QRS axis observed in our subjects and its progressive increase with pregnancy is in agreement with the pattern previously reported in pregnant Caucasian women [4-9]. Reasons for this left ward deviation of the QRS axis have been earlier advanced in this communication[5]. Though ventricular hypertrophy and dilatation have been reported to occur in pregnant Negro women [13] and this could contribute to a left ward QRS axis deviation [11] no significant ECG signs suggestive of ventricular hypertrophy or dilation was detected in our subjects. The QRS complex duration was also not significantly affected by pregnancy.

Unlike previous studies on pregnant Caucasian women [8,15] significant increases in heart rate could not be demonstrated in the present study. In addition, ectopic beats and incidences of cardiac arrhythmia were surprisingly absent in our pregnant subjects compared to previous reports on Caucasians [7,9] and in Africans.[13] Results of the present study would therefore, suggest minimal impairment of sinus rhythm during pregnancy in Nigerian women. We were also unable to demonstrate significant increase in respiratory rate in pregnant compared to non pregnant subjets. This is consistent with previous reports in African [13].

From the results of our study, we advise caution in the interpretation of ECG findings in Nigerian women during the antenatal period and suggest routine ECG before and during the antenatal period, especially in subjects with pre-existing cardiovascular disease.

In conclusion, we report significant ($p<0.05$) left ward deviation of the QRS axis of the ECG in Nigerian women during the course of normal pregnancy. No changes were observed in respiratory rate, heart rate, blood pressure and QRS complex duration. We advise caution in the interpretation of ECG results during the ante natal period.

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Laboratory diagnosis of gardnerella vaginalis vaginosis

***R Nneka Okwoli, J. I. Brian-D Adinma and C. N. Nnaeze**

**Department of Obstetrics and Gynaecology, Department of Medical Microbiology, Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria.*

Summary

An evaluation of various laboratory detection methods and characteristics of *Gardnerella vaginalis* was made using high vaginal swab samples of 470 out patient clinic - attending women. Gram stain for 'clue cells' showed positive results in 118 (25.1%)cases; culture, in 100 cases, (21.3%) and Amine Odour (21.3%), in 26 cases 5.5%, Majority, 71 cases, of the culture-positive results were associated with a pH value of 6 to 7. *Gardnerella vaginalis* grew predominantly in enriched culture media: Modified peptone-starch dextrose blood agar used for primary culture of organism, and also proteose peptone broth + cooked meat; Brain-heart infusion broth + 5% human serum; Brain heart infusion starch agar + 5% blood, and chocolate agar. *Gardnerella vaginalis* culture-positive samples also exhibited positive biochemical reactions with the hydrolysis of starch sensitivity to Bacitracin and 50µg metronidazole, and haemolysis on human blood agar. Carbohydrate fermentation test was positive for all culture-positive cases, 100% for starch and maltose only, and negative for all the cases, 0% for Mannitol and glycerol.

Key words: ***Gardnerella vaginalis, Vaginal swab, Laboratory detection.***

Résumé

Une évaluation des méthodes diverses de la decouverte laboratoire pour, et les traits caractéristiques de Vaginalis Gardnerella ont été fait tout en utilisant des échantillons éléves des tempons vaginals de 470 femmes nigérianes qui viennent consulter à la clinique. Le gramstain pour cellule indice avait indiqué un résultat positif dans 118 cas; culture en 100 cas, et l'Odeur Amine dans 26 cas. La majorité 71 cas, des résultat positif-culture avaient des rapports avec une PH valeur de 6 à Viginalis Gardnerella qui est d'une manière prédominante a rehausé le bouillon de culture; le sang agar de la peptone - amidon dextrose modifiée utilisé pour la culture primaire de l'organism, et aussi le bouillon proteoselpeptone + la viande cuite; l'infusion brouillon Brule-Vaginalis Gardenerella échantillons positifs-culture et aussi la présentation positive des réactions biochimique avec l'hydrolyse d'amidon très sensibe à Bacitracine et 50 ng metronidazole; et hémolyse sur l'agar du sang humain.

La réaction de la fermentation d'hydrate de carbone était positif pour tous les case positifs-culture; 100% pour l'amidon et maltose seulement, et négatif pour tous les cas, 0% pour Mannitol et glycérol.

Le pluce relatif de ces traits diverses de la dignostique laboratoire de Vaginalis Gardnerella et la critique de cette bibliographie sont ici l'objet de cette étude.

Introduction

Bacterial vaginosis (BV) is a relatively new sexually transmitted disease, the most important causative organism of which is *Gardnerella* vaginalis either alone or in combination with other organisms especially Mycoplasma hominis, Mobiluneus species and some obligate anaerobes[1].

G. vaginalis is important not just for its role in bacterial vaginosis but also for its involvement in several complications affecting organs both in the pregnancy and non-pregnancy states, and even in males. It has been encountered in preterm labour, premature rupture of membranes and chorioamnionitis[2,3] in neonatal meningitis[4], following hysterectomy[5] and also following prostatectomy[6].

Bacterial vaginosis is characterised clinically by the presence of adherent-grey, homogenous, offensive vaginal discharge; pH greater than[4,5], detection 'clue cells' in gram-stained smear, and the presence of amine odure on addition of potassium hydroxide[7,8].

In a previous report, we compared two laboratory methods of detection of *Gardnerella vaginalis*. The gram-stain for 'clue cells', and the GV culture methods[9]. The present study in addition evaluates other laboratory diagnostic parameters for G. vaginalis, viz, pH, Amine odour test, growth in different culture media, biochemical characteristics, and carbohydrate fermentation reactions of *Gardnerella vaginalis* isolates.

Materials and methods

The study was conducted among 470 female patientrs attending the general out-patient, gynaecological and antenatal clinics of Nnamdi Azikiwe University Teaching Hospital (NAUTH) and Summit Specialist Hospital (a private medical centre), both in Nnewi, Anambra State of South-Eastern Nigeria, over the 15-month period, February 1994 to April 1995. The 470 cases consist of 253 consecutive ante-natal clinic patients with or without a complaint of vaginal discharge, and 147 general out-patient and gynaecological clinic patients complaining of vaginal discharge. Two high vaginal swabs (HVS) were collected for this study from the lateral and posterior vaginal fornices of the subjects. The following investigations were conducted.

Microscopy: Gram-stain and wet preparations of the smears were made to search for evidence of epithelial 'Clue cells'.

Amine odour test: A drop of 10% KOH was added to some vaginal discharge put in a clean slide. The slide was brought close to the nose and sniffed for the perception of fishy odour which was noted and recorded as positive amine odour test.

Inoculation of media and incubation: incoculation of the vaginal swab was done using standard plating method described by Cruikshank et al[10]. Primary culture was carried out on peptone-starch-dextrose blood agar made selective by the addition of 4*mg* Gentamycin; 15mg/L Nalidixic acid and 12.5iu/L Nystatin. The medium was incubated in candle jar which provided 5-10% carbon dioxide tension. An elevated humidity was provided by putting soaked filter paper or cotton wool inside the candle jar. Incubation was at 37°C. The primary plate was examined every 24 hours for 96 hours.

Gardnerella vaginalis appear as tiny greyish smooth, roundish colonies with zones of B-hemolysis after 48 hours on which Gram-stain showed either Gram-negative or variable cocco-bacilli. pH: pH was conducted on G. vaginalis culture isolate using universal pH indicator with colour code ranging from I to II. The isolated Garnerella vaginalis was also cultured unto selected liquid and solid media, namely. Peptone-starch-dextrose broth; peptone-starch-dextrose agar; peptone-starch-dextrose sheep blood agar; chocolate agar; proteose peptone broth + cooked meat; proteose peptone broth + 5% human serum, Brain-heart infusion starch agar; brain-

**Correspondence*

heart infusion starch agar + 5% blood; proteose-peptone agar and 3% sodium chloride agar.

Biochemical tests: Some biochemical tests were also performed on Gardnerella vaginalis culture isolates, viz:

a. ***Catalase test***: A drop of 3% hydrogen peroxide was added to G. Vaginalis isolate following 48 hours growth on chocolate agar. The presence of gas bubbles indicated catalase production.
b. ***Oxidase test***[H]: A filter paper impregnated with 2 to 3 drops of 1% tetramethyl-phenylene-diamine dehydrochloride (oxidase re-agent) was placed in a petridish and a loopful of 48 hour growth of *G. Vaginalis* was smeared across the impregnated paper. A positive reaction was shown by the development of dark-purple colour within 10 seconds.
c. ***Indole test***: Kovac's colour reagent was added to 1 ml of 48 hour G vaginalis culture isolate. The presence of a red colour on the reagent layer on standing for 1 minute indicated indole production.
d. ***Citrate utilisation test***: A streak of G. Vaginalis was inoculated unto the surface of simmon's citrate agar slope and incubated aerobically at 37°C and examined daily for 7 days. A colour change from green to blue indicated positive reaction.
e. ***Urease test***: G. Vaginalis culture isolate was inoculated unto christensen's[12] agar slope and incubated aerobically at 37°C and examined daily for 5 days. The presence of a red colour indicated positive reaction.
f. ***Hydrolysis of Tween 80***: Heavy inoculation of G. vaginalis culture isolate unto Tween 80 agar plate was incubated in candle jar for 48 hours. Opaque haloes appearing under the colonies indicated positive result.
g. ***Hydrolysis of starch***: Gardnerella vaginalis culture was inoculated unto starch medium and incubated at 37°C. After 3 days the plate was flooded with Lugol's iodine solution. The presence of clear colourless zone indicate starch hydrolysis.
h. ***Hydrolysis of Gelatin***: Gelatin agar was inoculated with G. vaginalis culture isolate and incubated at 37°C in carbon dioxide for 3 days. The plates were then flooded with mercuric chloride solution. The presence of opacity in the medium with clear zones around colonies indicate gelatin liquifaction.
i. ***Antiobiotic diagnostic test***: Using a sterile cotton wool swab, a 48 hour broth culture of the organism was inoculated onto chocolate agar plates with Bacitracin. 5 mg and 50mg metrodanizole discs. This was incubated in carbon dioxide at 37°C for 48 hours, after which sensitive discs are shown as zones of inhibition while resistant ones show no zones of zones of inhibition.
j. ***Haemolysis test***: This was done by inoculating the G. vaginalis culture isolate unto peptone-starch dextrose human blood agar, and peptone-starch dextrose sheep blood agar. The haemolytic ability to these two blood-types was noted.
k. ***Acid production from carbohydrates***: The method of greenwood and Pickett[13] was used to prepare the medium for carbohydrate fermentation. Culture bottles containing the medium were heavily inoculated by stabbing with 48 hour cultures of G vaginalis grown on peptone-starch-dextrose blood agar. The bottles were incubated aerobically for 5 days. Acid production was indicated by a yellow colour. Sugars used for this test include: Arabionose, Dextrose, Galactose, Glycerol, Lactose, Maltose, Mannitol, Starch and Sucrose.

Result

The distribution of the result of Gram-stain (for 'Clue cells'); culture, and amine odour is shown in Fig 1. Gram-stain yielded positive result in 118 cases, out of which culture positivity occurred in 100 cases, and in which yet amine odour positivity occurred in 26 cases.

The distribution by pH for G vaginalis culture-positive result is shown in Table 1. All the culture positive results exhibited an alkaline pH reaction. The dominant pH was 6 (44 cases).

The culture and growth of G. Vaginalis in different growth media as shown in Table 2 indicates positive result in the following media: proteose-peptone-broth + 5%

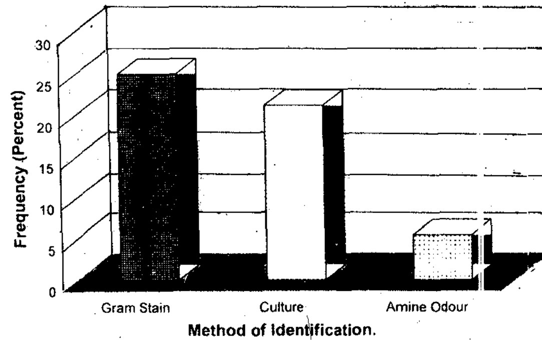

Fig. 1 ***Distribution by positive Gram-stain and Amino odour***

Table 1 Distribution by pH for gardnerella vaginalis culture-positive result

pH	No. culture-positive	Percent	n=100
5	21	21	
6	44	44	
7	27	27	
8	8	8	
Total	100	100	

Table 2 Culture and growth of gardnerella vaginalis to different growth media

Medium	Growth Result
Brain-heart infusion broth	-ve
Nutrient broth	-ve
Proteose-peptone broth	-ve
Proteose peptone broth + 5% human serum	+ve
Proteose peptone broth + cooked meat	+ve
Brain heart infusion broth + 5% human serum	+ve
Nutrient agar	-ve
Mackonkey agar	-ve
Brain heart infusion agar	-ve
Brain heart infusion starch agar	-ve
Brain heart infusion starch agar + 5% blood	+ve
Proteose peptone agar	-ve
3% sodium chloride agar	-ve
Chocolate agar	+ve

Key: +ve - Positive -ve - Negative

Table 3 Biochemical tests for gardnerella vaginalis culture isolates

Test	Result	n = 100
Catalase	-ve	
Oxidase	-ve	
Urease	-ve	
Indole	-ve	

Key: -ve - Negative

human serum; brain-heart infusion starch agar + 5% blood, and chocolate agar. All the other growth media yelded negative result to G vaginalis culture.

Table 3 shows the Biochemical Test of the culture-positive samples. All the tests - catalase, oxidase, urease and indole show negative reaction. Hydrolysis, sensitivity and haemolysis tests for Gardnerella vaginalis culture isolates is shown in table 4. Positive reactions were exhibited, in the hydrolysis of starch; sensitivity to Bacitracin and 50μg metronidazole and haemolysis on human blood

agar. Negative reactions occurred in all the other biochemical tests. Table 5 shows the distribution by carbohydrate fermentation tests of Gardnerella vaginalis culture isolates. Fermentation test was positive for starch and maltose in all the cases 100(100%). This was followed by dextrose, 89(89%) cases, Lactose, 72 (72%) cases, Galactose, 70 (70%) cases; sucrose, 34 (34%) cases; and Arabinose, 28 (28%) cases.

Table 4 Hydrolysis, sensitivity and haemolysis tests, for gardnerella vaginalis culture isolates

Test	Result	n = 100
Hydrolysis of:		
Tween 80	-ve	
Gelatin	-ve	
Starch	+ve	
Sensitivity to:		
Bacitracin	+ve	
Metronidazole (5µg)	-ve	
Metronidazole (50µg)	+ve	
Haemolysis on:		
Sheep blood agar	-ve	
Human blood agar	+ve	

Key: +ve - Positive, -ve - Negative

Fermentation test was not positive at all in any case (0%) for mannitol glycerol.

Table 5 Distribution by carbohydrate fermentation tests on gardnerella vaginalis culture isolates

Carbohydrate	No. Positive	Percent	n=100
Arabinose	28	28.0	
Sucrose	34	34.0	
Dextrose	89	89.0	
Mannitol	0	0.0	
Galuctose	70	70.0	
Maltose	100	100.0	
Lactose	72	72.0	
Starch	100	100.0	
Glycerol	0	0.0	

Discussion

The clue cell phenomenon, one of the identification features of bacterial vaginosis is due to attachment of adherent strains of Gardnerella vaginalis to epithelial cells[14] Gram-staining for 'clue cells' has been shown to be a rapid, acceptable routine screening method for the identification of G. vaginalis. It is blieved to be specific for G. Vaginalis vaginosis[15-17]. It is cheap and correlates well with culture results and has therefore been unequivocally recommended for use in developing countries where culture facilities are lacking[9] 'Clue cell' was positive in 118 cases in the study. Gram-staining therefore exhibited better detection properly for Gardnerella vaginalis than culture which identified 100 cases and amine odour test which identified only 26 cases.

Amine odour test carried out in the study showed poor correlation with the incidence of G. Vaginalis isolated from culture, being positive only in 26 cases. Similar observation was made by Saini et al who therefore emphasized the necessity for culture in the definitive diagnosis of G. vaginalis vaginosis. In addition, Jones et al[19] had stressed on the non-specificity of amine odour test which may also be positive in Trichomonas vaginalis infection. In contradiction to the above, Abudu *et al*[20] found Amine odour test to be positive in 77.3% of their cases and recommended it as a mandatory test in a set of tests for the screening of Gardnerella vaginalis. Chen *et al*[21], had identified [7] amines from the vaginal washings of patients with bacterial vaginosis among which putrescine and cadaverine are in highest concentration. The amines are derived from the decarboxylation activity of anacrobes on amino acids and pyruvic acid produced by Gardnerella vaginalis. They enhance the growth of the anaerobes, increase the concentration of amines in vaginal secretions and actually contribute to the pathogenesis of bacteria vaginosis and elevation of the p^H of vaginal discharge. They may also be partly responsible for the fishy odour that characterise the vaginal discharge of these patients[22]

A p^H greater than 4.5 is one of the universally accepted criteria for the diagnosis of bacterial vaginosis[8]. Majority of the G. vaginalis isolates, 71(71%) in this study was associated with p^H between 6 and 7.

Gardnerella vaginalis is a highly fastidious organism and requires an enriched media for culture. Primary culture of the organism was performed in this study using a modification of peptonetarch-dextrose agar[23] made selective by the incorporation of Gentamycin, Nalidixic acid and Nystatin. Blood was added to the medium to demonstrate haemolysis and also to enhance the growth of the organism. Many workers have used Columbia blood agar with Nalidixic acid and colistin sulphate. That an enrichment factor is necessary for enhanced growth of this organism is demonstrated in this study from the result of G. vaginalis growth in differrent media, for instance, no growth was observed in ordinary brain-heart infusion broth while growth occurred when human serum was added to the broth. Similar result was observed in the solid media where growth was observed in brainheart infusion agar only when blood was incorporated. In media lacking blood, such as the media for carbohydrate fermentation, citrate and gelatin tests, heavy inoculum was used and incubation had to be over a longer period (3 or more days), for any significant growth to be observed.

Gram-staining of G. vaginalis culture isolates show Gram-variable coccobacilli which appear singly, in pairs, or in pallicade arrangement. The Gram-variable nature of Gardnerella vaginalis was confirmed from recent report by Catlin[24] following electron microscopy and chemical analysis of the organism. Prior to this time, the taxonomic position of Gardnerella vaginalis was under a lot of controversy. Earlier workers[7,16] had labelled it as Gram-negative while others[25] had regarded it as Gram-positive organism.

Biochemical identification tests and carbohydrate fermentation tests performed in this study were mostly in accordance with those performed by Greenwood and Pickett[13] and Taylor and Philips[26]. Although variable results were observed with some of the sugars used, maltose and starch remained consistently 100% positive to fermentation while glycerol and mannitol remained consistently negative (0%). Sensitivity to Bacitracin[13] and resistance to lower concentration of metronidazole[26] are used as identification tests. In this study *G. Vaginalis* isolates were resistant to 5*ug* metronidazole and sensitive to bacitracin and 50*ug* metronidazole. This agrees with the findings of Pandit *et al*[27] who reported that none of their isolated strains of *G. vaginalis* was sensitive to 5ug metronidazole while 93% were sensitive to 50ug metronidazole discs. Well and Goei[28] recommended the use of a combination of tests which include hydrolysis in sheep blood agar; hippurate hydrolysis; inhibition by bacitracin and *Streptococcus* sanguis; and susceptibility of metronidazole at 50ug and resistance to 1.5ug sulphonamide for identification of *G. vaginalis*. Young and Thompson[29] utilised the fact that most isolates of *G. vaginalis* hydrolyse hippurate and ferment starch but not rafinnose to develop a Rapid microbiochemical method for the identification of *G. vaginalis* called a Rapid micro-starch-hippurate-raffinose (RM-SHR) method. The medium, now commercially available is now called a Rapid identification method (RIM).

Recently, Sheiness et al[30] demonstrated a new approach to the diagnosis of bacterial vaginosis based onmeasuring the concentration of *G. Vaginalis* in vaginal fluids using DNA probes will not cross hybridise with DNA of a number of non-Garnerella organisms commonly found in the vagina thereby making this method a useful tool for the direct identification of *G. Vaginalis* from mized clinical specimens. Indirect immuno-fluorescent technique, using fluorescein-labelled G. vaginalis polyclonal antibiody detected G.

vaginalis in vaginal smears in a higher percentage than its culture[32]. Cytological studies have also been used to identify G. Vaginalis[33,34].

In conclusion, this study has recognised the important place of Gardnerella vaginalis as a cause of infection in humans, and highlighted different characteristics of the organism and possible laboratory diagnostic methods for its identification. It also reviews the place of these identification methods as well as highlight other available modern; simple, sophisticated; or rapid detection methods for Gardnerella vaginalis, and for a more accurate diagnosis of bacterial vaginosis.

Acknowledgement

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Temporalis muscle flap and forehead flap for a single stage primary repair of the orbit after exenteration

Dear Sirs,

We read the article of Oluwatosin OM et al. "The temporalis muscle plus glabellar flap; handy local flaps for orbital repair after exenteration"[1] with great interest. Moreover, we had a similar case or orbital exenteration for lower eyelid melanoma, infiltrating the periorbital tissue in which we used the combination of temporalis muscle flap and forehead flap for orbital repair.

In this case we performed a total orbital exenteration followed by a primary orbital repair with a temporalis muscle flap grafted with a STSG. Unfortunately, the graft did not take and local infection of *staphyloccocus aureus* appeared which spread down into the maxillary sinus. In this case we performed on one stage a Calve-Luc operation on the maxillary sinus and closure of the orbit with a paramedian island forehead flap after we removed the necrotic and infected skin graft. The flap was passed through a tunnel under the skin between the eyebrow and the glabella.

The sinus treatment included antibiotic therapy as well as it healed within seven days. The forehead flap proved an excellent solution even in this case of severe infection and healed without sequellae.

Though Rougier J et al[2] claim that the primary repair after orbital exenteration should not be performed, nowadays it has been accepted as the method of choice after orbital exenteration[3]. We also prefer the primary repair with temporalis muscle flap which is quite reliable and provides sufficient volume.

When a total exenteration is performed, that is both eyelids and excised on block with the orbital contents the question about the closure of the orbit remains. The skin grafting of the temporal muscle is well-known but not always effective. It can be even inconvenient in cases when postoperative radiotherapy is required. In such cases the well vascular forehead or glabellar flaps may provide an excellent solution for closure of the orbit. That is why we would like to congratulate Oluwatosin OM et al. for their interesting statement. We consider the primary repair of the orbit after exenteration with a temporalis muscle flap and a forehead or glabellar flap an excellent solution.

Christo Shipkov
Plastic and Craniofacial Ward
Higher Medical Institute - Plovdiv
No. 66, Peshtersko Shosse Blvd.,
Hirurgicheski Kliniki, Floor 3,
Plovdiv, 4002
Bulgaria.

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Dermatology consultation in Olabisi Onabanjo University Teaching Hospital, Sagamu

Dear Sir,

The purpose of this letter is to report the spectrum of dermatological diseases seen during the first twelve months of dermatological consultations at the Olabisi Onabanjo University Teaching Hospital, Sagamu.

A total of 306 patients with 339 dermatoses were seen during this period. There were 156 males and 150 females with an equal sex ratio. The mean age was 32.9± 9.7 years (range 6 weeks to 84 years) with a peak age incidence in the third decade of life - 51 (16.7%). Eczema/dermatitis was the most prevalent dermatoses, 86(25.4%), followed by fungal infections, papulo-squamous disorders, viral infections and parasitic infestations accounting for 49(14.5%), 28(8.3%), 26(7.7%) and 24(7.1%) of cases respectively. The proportions of acne keloidalis nuchae, bacterial infections, connective tissue disorders and drug eruptions were 18(5.3%), 14(4.1%), 14(4.1%) and 12(3.5%) respectively. Other skin diseases seen include vitiligo 12(3.5%) and acne vulgaris 6(1.8%). A miscellaneous group accounts for 42 (12.4%) cases comprising alopecia areata 6(2.5%), angiogenic urticaria, benign papilloma nigrans and 'pruritus of unknown cause' each accounting for 4(0.6%) cases, while multiple lentigenes, gas burn injury, palmoplantar hyperkeratosis, scarification marks, skin lightener dermatitis, post-inflammatory hyperpigmentation, neurofibromatosis, skin striae, atrophic vaginitis, follicular hyperkeratosis, leprosy and dermographism, each accounted for 2(0.8%) cases respectively.

Generally infective skin conditions such as bacterial, fungal and parasitic infestations are usually easily recognised and are not referred to a specialist clinic. Similar to earlier findings in an African setting,[1] eczema/dematitis and papulo-squamous eruptions were the most common skin eruptions seen after excluding infective skin conditions. The high incidence of lichen planus in the African[2,3,4] has been attributed to the use of indigenous medicines.[5] Although a more reliable information could be obtained from an analysis of a comprehensive dermatological survey of Sagamu community, this review provides useful information about the prevalence of skin diseases in Sagamu and environment; the conclusions are not necessarily typical of the situations in the town as a whole. It will however serve as a baseline from which to observe the changing pattern of skin diseases in later studies.

C. O. Alebiosu
P. O. Box 4622
Dugbe Post Office
Ibadan, Oyo State,
Nigeria.

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Congenital Icthyosiform – A case report

A. A. Orogade
Department of Paediatrics
Ahmadu Bello University Teaching Hospital
Kaduna, Nigeria.

Summary

Congenital icthyosis is a rare group of disorders of keratinisation. A case of this condition is reported in order to highlight the clinical features and essential components of management: resuscitation, skincare, nutrition and counselling. This case is reported in order to appraise clinicians of its presence because there was delay in the diagnosis and management due to non-recognition.

Keywords: ***Ichthyosis, Congenital, Kaduna, Nigeria.***

Résumé

Les démengeaisons congénitales - ichthyosis sont des rares groupes de mutation de la peau-keratinisation. Un cas de cette maladie rare nous ai reporté afin d'éclaisir les differents apparences et leurs traitment: qui inclus la reanimation, les soins de la peau, la nutrition et un exposé aux parents. Ce cas entraine un delai de diagnostics et de traitments du a la non identification de la maladie. Donc, nous tenons a vous rappeler son existence.

Introduction

Congenital ichthyosis is a group of disorders of keratinisation which are generally determined: autosomal recessive, X-linked or could occur spontaneously as fresh dominant mutations.[1,2] Presentation ranges from mild cases with collodion membrane covering to the severe lethal form - Harlequin infant[3]. Reports of its local literature are scanty – probably a true reflection of the rarity of this condition or may be under-reporting from non-recognition. This communication highlights the clinical features of congenital ichthyosis in order to increase the awareness regarding the condition and therefore to enhance early management especially in the severe forms that have a high mortality.

Case report

A.H. a 3 day old female was admitted to the Special Care Baby Unit (S.C.B.U) of Ahmadu Bello University Teaching Hospital (ABUTH), Kaduna on the 4th January 2000 with a history of abnormal skin appearance and eye discharge noticed at birth. She was born after a full pregnancy to a 29 year old Para 5+0 (all alive) Hausa mother; she had generalised pruritic rash at the 4th month of pregnancy; there was no associated fever or jaundice. The rash spontaneously disappeared after 4 days. There was no history of vaginal discharge, per vagina bleeding or premature rupture of membranes. Delivery was attended to at a peripheral hospital and the child cried immediately after birth. The medical staff at the hospital noticed an abnormal skin appearance and A. H. and her mother were immediately discharged inspite of mother's plea for medical information and care with regards to her baby. On discharge, A. H. was taken home and then to 3 other private hospitals from where she was finally referred to ABUTH, on the 3rd day of life. The child is the last of 5 siblings in a monogamous home setting. Her father is a 37 year old Hausa-Fulani civil servant and there is no history of consanguinity. There is no known family history of such skin disorder. On presentation at ABUTH, physical examination revealed a full term baby covered with a thick, taut membrane (Collodion).

Face

There was wrinkling with ectropion, chemosis and bilateral conjunctivitis. The apposition of the upper and lower eyelids was not good. The ears and nose were flattened with partial membrane covering the nostrils. The lips were everted and fixed in an O-shape and there were fissures at the angles of the mouth.

Fig. 1 *Facial features in Congenital icthyosiform*

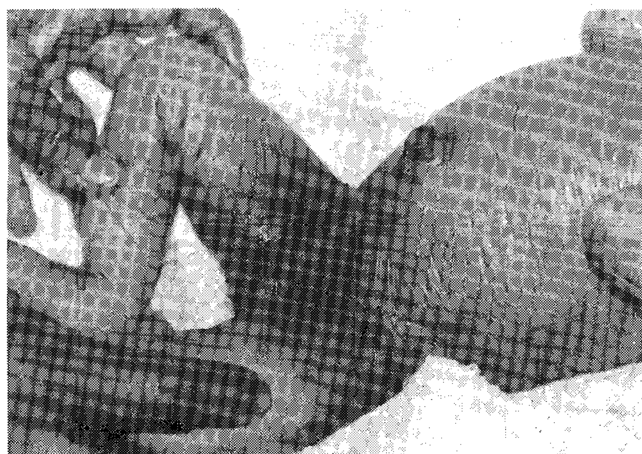

Fig. 2 *Wrinkling and fissures in the trunk and groin flexures*

Correspondence

Fig. 3 ***Constriction in the digits***

The scalp was dry and moistureless with hair piercing through the membrane covering on it.

Trunk and Neck

The skin over these was rough and dry with erythematous patches over the axillary folds. There were fissures in the membrane over the chestwall and also at the groin flexures.

Limbs

There was constriction of the digits by the taut membrane with ischaemia, edema and restriction of movement of the fingers and toes. Crusted flexural membrane cracks were seen, while the palms and soles were hyperkeratotic. The nails were atrophic.

She was mildly jaundiced and dehydrated with an admission weight of 2.7kg. Gestational age assessment by the mother's dates was 39 weeks. Respiratory, cardiovascular and abdominal findings were normal. Based on these clinical findings, a diagnosis of congenital non-bullous ichthyosiform Erythroderma was made. Histopathologic diagnosis was not available. A. H. was managed for one week on admission with emphasis placed on resuscitation, skincare, nutrition and counselling. Skincare in the management of this baby involved emphasis on prolonged baths with bath oil to remove excessive scaling and mal-odours which resulted from infected, macerated cracks on the skin. Generous and frequent application of keratolytic agents – 2% Salicylate in Vaseline to prevent dryness and to lessen the scales.

Infection at the flexural surfaces due to fissuring were treated by systemic antibiotics and fresh ones prevented by skincare. The ophthalmologist treated for exposure keratitis and referred to the plastic surgeons for correction of the ectropion. The parents were counselled as to the nature of the disorder, and to help reduce the psychological stress associated with the disfigurement and enable them to understand how to manage the child well.

At the time of this report, A. H. has been seen twice on follow-up and is now 3 weeks old, gaining weight and the fissures are healing. Her skin is still very dry and coarse but her mother is well adjusted to the management of her child.

Discussion

The diagnosis of congenital ichthyosis is usually made from clinical features as well as histopathological changes from light and electron microscopy; the inheritance patterns will also differentiate the type. There is no doubt from the characteristic clinical features in this child that she presented with non-bullous ichthyosiform erythroderma which could have made the diagnosis easy. However, non-recognition of the condition led to delay in therapy. Congenital ichthyosis may present in the severest forms as the harlequin infant which is covered by markedly thickened ridged and cracked membrane that disfigures the facial features and constricts. This results in respiratory difficulty, poor suck and severe cutaneous infections which are all associated with a high mortality. The Collodion baby is also the presentation at birth of other forms of ichthyosis such as bullous congenital icthyosiform erythema, X-linked and ichthyosis vulgaris, which are differentiated by other clinical features. Other methods of diagnosis by histopathologic changes from light and electron microscopy also help to differentiate subtypes of varied forms.[4] Genetic factors suggested in X-linked congenital ichthyosis include partial or complete deletion of steroid sulfatase (STS) gene[1], mutation at an X chromosome site genetically linked to the STS gene.[5] Controversy abound concerning mutation of keratocyte transglutamate gene as causative in lamellar ichthyosis[6]. Counselling in ichthyosis is necessary as the clinical disfigurement leads to considerable psychological stress. Parents may also be offered the option of prenatal diagnosis where available. Low levels of maternal serum unconjugated oestriol in the 2nd trimester are indicative of congenital ichthyois. Follow-up of the children is done in view of associated disorders seen as the child grows older such as Sjogren syndrome (degenerative defect of retinal pigment, motor speech development delays, epilepsy and mental derangement), Netherton syndrome (failure to thrive, marked hypernatraemia, urticaria, angioedema and asthma), SLE and cutaneous carcinomas. Though histopathological means are not available, congenital ichthyosis should be diagnosed at least clinically to enhance saving the lives of these children.

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Klebsiella-induced purpura fulminans in a Nigerian child: Case report and a review of Literature

W. A. Olowu
Paediatric Nephrology Unit, Department of Paediatrics
Obafemi Awolowo University Teaching Hospitals complex
PMB 5538, Ile-Ife, Osun State, Nigeria.

Summary

Purpura fulminans (PPF) is a very severe but rare acute thrombohaemorrhagic illness of infants and young children. It occurs mainly, in patients with either congenital or acquired deficiencies of proteins C and S and antithrombin III.

Features of PPF include disseminated intravascular coagulopathy, symmetrical necrotic purpura and/or ecchymoses and symmetrical peripheral gangrene; digital and/or limb(s) amputations and end-organ failure(s) may also occur.

The case of a 3.5 year-old Nigerian girl, who developed PPF following Klebsiella-rhinoscleromatis septicaemia is reported to illustrate the seriousness of the disease and the need for early diagnosis and management.

Keywords: ***Septiceamia, Purpura fulminans, Renal failure, Skin necrosis, Digital gangrene, Autoamputations.***

Résumé

Le Purpura fulminans (PPF) est une maladie thrombohémorrhaique très grave mais rare chez les bébés et les petits enfants. Elle se produit en grande partie chez les patients soit avec congénital ou déficiences des protéines C et S acquis et anti-thrombin III.

Les traits de caractère de PPF comportent: la coagulopathie disséminée intravasculaire, purpura nécrotique symétrique et/ou l'ecchymoses et la gangrène symétrique périphérique digital et/ou amputation des membres et échec du fonctionnement de bout des organes pourrait arriver.

Il s'agit d'une analyse d'un cas d'une fille nigeriane âgée de 3, 5 ans qui avait contracté le PPF par suite de la septicaemie klebsiellarhinoscleromatis afin de démontrer la gravité de la maladie et le besoin de fairer la diagnose et le traitement à la première occasion ou dans le plus bref délai possible.

Introduction

Purpura fulminans (PPF) is a very severe but rare acute illness of infants and young children[1–4]; few cases, however, had been reported in adults[3,5]. Like disseminated intravascular coagulation (DIC), haemolytic uraemic syndrome (HUS), and thrombotic thrombocytopaenic purpura (TTP), PPF is a consumptive thrombohaemorrhagic disorder (CTHD)[1,6]. PPF is characterised by DIC features, uniformly symmetrical necrotic purpura and/or ecchymoses, symmetrical peripheral gangrene and amputations[2,3,5]; furthermore, renal cortical necrosis (resulting in renal failure), ischaemic encephalopathy, ocular lesions, gastrointestinal ulceration, and adrenal gland necrosis secondary to severe, widespread microcirculation thromboses may form part of the clinical picture in some cases[1,3,5]. Although PPF can be provoked by any infection, acute *varicella, streptococcal* and *meningococcal* infections appear to be commonly implicated[2,3,5,7].

This condition possibly represents a very severe form of DIC because unlike HUS and TTP, there is associated consumption of coagulation factors[1–4,7], leading to prolonged prothrombin time (PT) and partial thromboplastin time (PTT); thrombocytopaenia is, however, common to all the CTHDs[1,6]. DIC features associated with PPF, are initiated by vascular injury caused by the infecting organism. Bacterial endotoxins for example, mediate vascular injury through a variety of effects on the alternate pathway of complement, neutrophils, endothelial cells, factor XII and monocytes[8,9]. Activated monocytes secrete proinflammatory cytokines namely: tumour necrosis factor alpha (TNF-α), interleukin 1 beta (IL–1β)and interleukin 6(IL–6), which play important role in the mediation of biological effects of endotoxin[10]. These factors subsequently release other cellular mediators, and activate neutrophils and endothelial cells; these events invariably, lead to adhesion of activated neutrophils to endothelial cells thereby causing vascular injury and DIC[11,12] with varying degrees of thrombosis and/or bleeding. In PPF, the degree of thrombosis is usually profound with serious ischaemic injuries to tissues and organs.

This report illustrates the importance of early diagnosis and management of purpura fulminans.

Case illustration

A 3.5 year-old girl presented to our facility with a 3-day history of fever associated with vomiting and diarrhoea, and a day of difficulty with breathing, restlessness and yellowness of the eyes.

She was not clinically dehydrated but was severely pale,

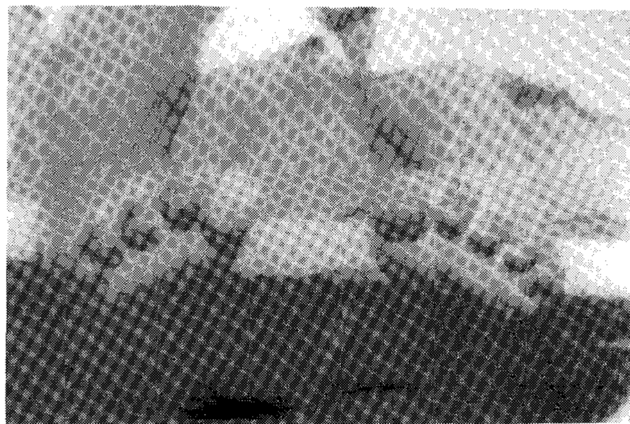

Fig. 1 ***Swollen feet and gangrenous toes. Amputations of 4th and 5th toes of the left foot occurred on day 18 of the illness. Autoamputated toes not shown because patient took voluntary discharge before photograph could be taken.***

Correspondence

Table 1 Results of haematological and microbiological investigations

	Days				
Investigations	**1**	**3**	**5**	**9**	**18**
Haematology					
Haematocrit (30 – 42%)	17	21	25	24	28
WBC count (3,500 – 8,500/cmm)	15,300	18,000	–	16,700	10,800
WBC differentials					
– Lymphocyte, %	70	66	–	63	62
– Neutrophil, %	28	34	–	37	35
– Eosinophil, %	2	–	–	–	3
Platelet count (150,000 – 400,000/cmm)	96,000	11,000	–	42,000	85,000
Reticulocyte count (0.2 – 2%)	0.3	5	–	3	1.1
Fragmented red blood cells	Nil	Numerous	–	Numerous	Few
Bleeding time (2–5min)	–	32	–	–	3
Whole blood clotting time (4 – 10 min)	–	60	–	–	7
Prothrombin time (PT) 12 – 16 sec)					
– Patient	–	28	–	–	15
– Control	–	13	–	–	12
– PT ratio (1.2–1.3)	–	2.2	–	–	1.3
Microbiology					
Blood					
– Culture	KR isolated	–	–	–	–
– Malaria parasites	Nil	–	Nil	–	–
Cerebrospinal fluid					
– Colour	Turbid	–	–	–	–
– Neutrophils	150/cmm	–	–	–	–
– Gram stain	Gram negative bacilli	–	–	–	–
– Culture	Sterile	–	–	–	–
Urinalysis	Normal	–	Epithelial Cells 1+	–	Epithelial cells 3+
Urine Culture	Sterile	–	Sterile	–	Sterile

Normal range of values are in brackets
KR = Klebsiella rhinoscleromatis: Sensitive to gentamicin, cefuroxime, tetracycline, co-trimoxazole, ceftriaxone and colistin.
Reagents for partial thromboplastin time were not available as at the time this patient was seen.

mildly icteric, very dyspnoeic, irritable and talking irrationally. She weighed 15kg and was 98cm tall. Body temperature, respiratory rate, pulse rate and blood pressure were 39°C, 80 cycles/minute, 154 pulsations/minute and 90/60mmHg, respectively. The pulse was bounding and irregular; heart rhythm was galloping. There were bilateral chest crepitations: Liver and spleen were enlarged to 8cm and 6cm below the costal margins, respectively; both were soft, smooth but tender. Bowel sounds were diminished in intensity. Nuchal rigidity and Kernig's sign were demonstrable.

The initial diagnosis was septiceamia complicated by meningitis and anaemic heart failure ± bronchopneumonia. Intravenous (IV) chloramphenicol, 1.5g/day and IV crystalline penicillin, 6 mega units/day were started in four divided doses, respectively. She was transfused with 150ml of packed cells (haematocrit was 17%) in addition to IV frusemide; she was later digitalised. Results of relevant investigations requested, are shown in Table 1.

She bled from injection and venepuncture sites, nose and gums on the third day of admission; furthermore, the oropharynx and soft palate were found to be haemorrhagic. Symmetrical purpuric rashes were also observed on the trunk, buttocks and the four limbs thus suggesting the possibility of DIC. She equally bled (ecchymoses) into dorsal and plantar surfaces of distal one-third of both feet and toes. The haemorrhagic areas of both feet were initially purplish but later became purplish-black, cold, swollen and tender. The dorsalis pedis arteries were, however, palpable. Repeat haematocrit was 21% and the patient was again transfused, with 300ml of fresh whole blood (FWB) in view of the suspected DIC and on-going blood losses. Bleeding, stopped the day after. By the 5th day, the toes had become gangreneous (Figure 1) thus indicating progression to PPF. This was followed by necrosis of the dorsum of both feet (distal one-third) on the 8th day. X-rays of both feet were normal.

Oliguric ARF was also observed on day 5, and plasma and urinary investigations confirmed renal insufficiency (Table 2). Fluid intake per day was subsequently restricted to insensible fluid losses (300ml/M²/day) and urine volume in the previous 24 hours. Protein intake was reduced to 1g/kg/day). The oliguric phase lasted one week. Renal function gradually improved with the onset of the diuretic phase, and appropriate correction of associated fluid and electrolytes derangement.

Klebsiella rhinoscleromatis was isolated from the blood on the 6th day of admission and antibiotics were changed to IV cefuroxime (500mg 8 hourly) and intramuscular gentamicin (40mg once daily) based on antibiotic sensitivity report (Table 1). Low-dose gentamicin was administered once daily because of the ARF.

The high body temperature gradually returned to normal (36.5°C) by the 18th day. The meningitic signs had resolved 6 days earlier. However, auto-amputations of 4th and 5th toes of the left foot occurred on day 18 and patient was voluntarily discharged from the hospital 3 days later.

Discussion

This case illustrates the severe and distressful course septicaemia may take in a child, especially when it is complicated

Table 2 Results of biochemical investigations

Investigation	Days 1	5	8	11	14	18	20
Plasma							
Random Blood glucose (2.2 – 10mmol/L)	2.7	2.5	–	–	–	4.7	–
Total bilirubin (up to 20μmol/L)	102	208	–	217	140	107	95
Conjugated bilirubin (up to 5μmol/L)	70	119	–	170	95	76	55
Sodium (136 – 145mmol/L)	133	120	125	130	129	132	136
Potassium (3–5mmol/L)	3.0	5.3	5.8	5.5	4.0	3.5	3.5
Bicarbonate (26 – 30mmol/L)	24	18	15	19	23	26	25
Phosphate (0.65 – 1.3mmol/L)	1.03	1.8	2.08	2.0	1.43	1.0	0.7
Calcium (2.25 – 2.75mmol/L)	2.4	1.2	1.0	1.2	1.75	2.1	2.5
Urea (2.5 – 7mmol/L)	6.0	22.8	25.0	30.9	21.5	12.8	5.5
Uric acid (0.12 – 0.36μmol/L)	0.15	0.5	0.5	0.76	0.25	–	0.13
Creatinine (30–80μmol/L)	70	215	583	732	432	225	106
Protein (60–80g/L)	55	55	–	–	–	–	60
Albumin (35–55g/L)	38	24	–	–	–		31
Cerebrospinal Fluid							
Protein (15–45mg/dl)	85	–	–	–	–	–	–
Glucose (2.7 – 3.9mmol/L)	1.2	–	–	–	–	–	–
Urine							
Protein	–	2+	–	–	–	1+	–
Specific gravity (1.025 – 1.035)	–	1.012	–	–	–	1.018	–
FeNa (1%)	–	3.5	–	–	–	1.8	1.35
Creatinine clearance (86 – 162ml/min/1.73M²)	–	18.23	–	–	–	–	47

- *Figures in brackets = Normal range of values*
- *FeNa = Fractional excretion of filtered sodium; values greater than 1% suggest ARF.*

by a fulminating purpura.

Fever, purpuric rashes, gross haematuria, palor, varying degrees of renal and neurological dysfunction are some of the clinical features of the CTHDs[1,6]. Some of the laboratory features include microangiopathic haemolytic anaemia (presence of fragmented red blood cells on peripheral blood film), thrombocytopaenia, reticulocytosis, microscopic haematuria, proteinuria and elevated blood urea nitrogen[1,6]. It can therefore, be very difficult distinguishing one form of CTHD from the other; and without critical appraisal of some salient features, one can easily be misdiagnosed for the other. This explains why the bleeding diatheses were initially ascribed to DIC in this patient. Uniformly symmetrical purpura or ecchymosis, symmetrical peripheral gangrene, prolonged PT and PTT are present in PPF but are absent in both HUS and TTP[1,6]. Prolonged PT and PTT are common to both PPF and DIC but uniformly symmetrical purpuric/ecchymotic lesions (or necrosis) and peripheral gangrene which are the hallmarks of PPF, are absent in DIC[1,6].

Clinical and laboratory features in this patient typify a classical case of PPF. PPF occurs mainly in patients with either acquired[3,5] or congenital[13,14] deficiencies of the natural anticoagulants (NACs) which prevent undue systemic thrombosis. NACs include proteins C and S and antithrombin III (AT–III)[15]. Usually, PPF occurs spontaneously in congenital deficiencies of the NACs[13,14]. On the other hand, it is often provoked by acquired deficiencies of the NACs following severe infections[3,5]. Our patient possibly had acquired deficiencies of the NACs. In centers where facilities for assaying for proteins C and S, and AT–III are lacking, early diagnosis of PPF before onset of thrombotic skin necrosis and gangrene with or without end-organ failure(s) may be very difficult in patients with purpura or ecchymosis. Failure to diagnose PPF before onset of skin necrosis, digital gangrene and ARF in our patient, demonstrated this difficulty. Ability to assay for plasma levels of the NACs appears to be the surest means of making early diagnosis of PPF.

Of the three NACs, protein C is often the most deficient in PPF[16]. A strong correlation has been established between the severity of acquired protein C deficiency and extent of thrombotic skin lesions and adverse clinical outcome[16].

Approach to treatment of PPF is often multi-dimentional; it encompasses replacement of deficient NACs especially protein C, heparinization, antibiotic therapy, judicious management of end-organ dysfunctions, skin grafting and surgical amputation of gangrenous limb(s) when indicated[1,3,7,17].

Monoclonal antibody purified protein C concentrate had been administered to patients by continuous IV infusion with good results[3,15]. Where protein C concentrate is not available, fresh frozen plasma or FWB may be transfused to replace deficient NACs, coagulation factors and platelets. Transfused FWB partly helped in limiting further progression of the thrombotic skin necrosis and gangrene in our patient.

Heparin therapy is not encouraged in DIC because of its potential for aggravating haemorrhage and thrombocytopaenia[18]; it, however, remains an effective therapeutic agent in PPF because of its anti-coagulatory and anti-inflammatory properties[19-20]. Heparin potentiates the anti-coagulatory action of AT–III[7]. And whithout adequate plasma level of AT–III (level ≥ 35 IU/ml), heparin therapy will be ineffective[3]. Some treatment failures, may infact be due to this. Heparin also binds TNF-α, IL-1β and IL-6 in addition to inhibiting their synthesis by monocytes, thereby limiting cytokine-mediated vascular injury and thrombosis[19,20]. Higher levels of these proinflammatory cytokines in PPF, have been associated with high mortality rate[21]. Early treatment with heparin, reduces

the risk of digital necrosis and subsequent amputation[17]. A loading dose of about 50units/kg of IV heparin followed by a continuous IV infusion of 10–20 units/kg/hour is considered much physiologically safer than intermittent injections[7]. The problems of haemorrhage and thrombocytopaenia associated with regular heparin have been reasonably overcome with the use of low molecular weight heparins. Low molecular weight heparins are given once daily, and are not associated with heparin-induced thrombocytopaenia[22,23]. The bleeding diatheses which were initially ascribed to DIC, precluded heparin therapy in our patient.

Although ARF was successfully managed in our patient without dialysis, some workers have claimed better outcome with continuous venovenous haemodiafiltration (CVVHD)[3]. Low morbidity and mortality rate have been associated with sepsis-related ARF when CVVHD is commenced early in the course of sepsis, to remove proinflammatory cytokines[24,25].

Fulminating purpura may initially masquerade as DIC! Therefore, presence of uniform and symmetrically distributed purpura and/or ecchymoses in any sick child with sepsis should strongly arouse the suspicion of PPF. Definitive management should be instituted before onset of thrombotic skin necrosis, peripheral gangrene and end-organ failure(s).

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The conjoined twins of Gusau, Nigeria

T. Adebowale Aiyedun
Department of Obstetrics and Gynaecology,
Federal Medical Centre, Gusau, Nigeria.

Summary

A case of Thoracopagus conjoined twins complicated with rupture of the uterus is presented. The patient was admitted after a prolonged second stage of labour. Diagnosis was made at laparotomy. Problems in diagnosis are discussed and the benefits of antenatal care and confinement under skilled supervision are emphasised.

Keywords: ***Conjoined twins, Thoracopagus monster, Ruptured uterus, Laparotomy***

Résumé

Il s'agit d'un cas compliqué de thoracopagus de jumeau conjoint avec la rupture de utérus. Le patient a été hospitalisé après la deuxième étape prolongée. On a fait la diagnose à travers la laparotomie. Des problèmes durant la diagnose ont été discutés et on avait attiré l'attention sur les avantages des soins anténataux et accouchement sous la surveillance d'un spécialiste.

Introduction

Conjoined twins are very rare. The exact incidence of this anomaly is unknown because most of them end in aborting or stillbirths and hence may not be recorded.[1] However, estimated incidence in the literature ranges from 1:50,000 to 1:100,000 births and 1:400 pairs of monozygotic twins.[2-4]

The two types of conjoined twins are the diplopagus in which both members are approximately equal in size and joined symmetrically to each other and the heteropagus in which one member, the autosite is normal or nearly so and bears an incomplete member, the parasite which is completely dependent on it.[5] The diplopagus conjoined twins is the best known type as the majority of the cases reported so far belong to this group.

This report presents a case of thoracophagus conjoined twins encountered at the Federal Medical Centre, Gusau, Nigeria.

Although the exact cause of conjoined twins is unknown, the available evidence suggests that these are incompletely separated monozygotic or identical twins.[8]

Case report

H. M. a 38-year-old Gravida 11, para 8 + 2 was admitted in labour due to prolonged second stage. She had had eight previous uneventful home deliveries under the supervision of traditional birth attendants. All the babies were described as being normal. There was no family history of twinning.

Her present pregnancy, like the previous ones was completely unsupervised. She arrived in hospital after having been in second stage for over six hours and the fetal head failed to descend despite attempts by traditional birth attendants to effect delivery.

Physical examination upon admission revealed an exhausted, dehydrated and moderately pale woman with a temperature of 38.4 degrees centrigrade. Her pulse rate was 100 beats per minute and the blood pressure was 90/60 millimetres of mercury. The abdomen was markedly distended and tender with a positive fluid thrill. The normal uterine contour was absent and fetal parts were easily palpable beneath the abdominal wall.

Vaginal examination revealed a fetal head outside the introitus but closely applied to the perineum in right occipito-anterior position. There was trickling of blood out of the introitus.

A diagnosis of ruptured uterus probably due to shoulder dystocia was made.

Accordingly, a decision to perform an emergency laparotomy after adequate resuscitation of the patient was taken. Venous blood samples were immediately withdrawn for an urgent packed cell volume estimation, grouping and crossmatching and serum urea and electrolytes estimation.

An indwelling Foley's catheter was passed and urine sample obtained for urinalysis. She was commenced on intravenous fluids:- normal saline alternating with 5 percent dextrose-in-saline at the rate of 1000 mls every six hours. Intravenous ampiclox 500 milligrams every six hours with intravenous metronidazole 500 milligrams every eight hours were administered. She was also given intravenous antitetanus serum 1500 I. U. start after a test dose.

Her packed cell volume was 20 percent, the blood group was 'O' rhesus positive, the serum urea was slightly elevate (7.2mmol/L) but the electrolytes were within normal limits. Her urine had a trace of acetone but no sugar or protein. She was transfused with two points of fresh whole blood pre-operatively.

At laparotomy, the findings were a haemoperitoneum of about 2000 millilitres. An oblique rupture of the anterior wall of the uterus extending from the left cornu to the lower uterine segment about 4 centimetres short of the dome of the bladder. A thoracopagus macerated conjoined twins, both female with the lower limbs and the breech of one of the members extruded into the peritoneal cavity through the site of rupture. The conjoined twins were easily extracted through the site of rupture and the placenta (a large monochorionic placenta) was manually delivered. The uterus was repaired in two layers and bilateral tubal ligation effected. The patient was transfused with a third pint of blood intraoperatively. The combined weight of the babies was 4800gms.

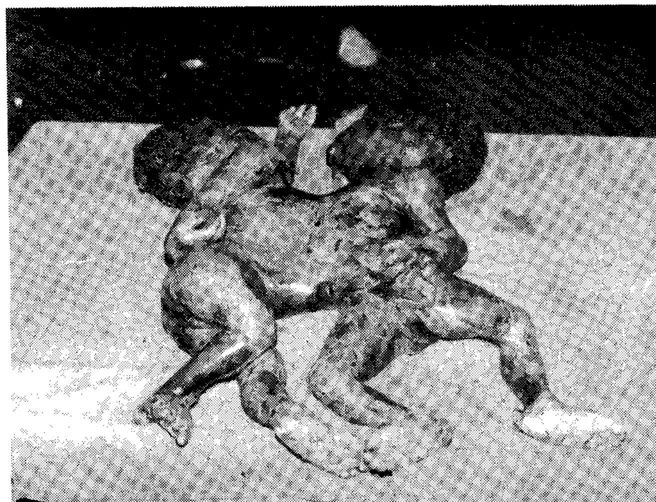

Fig. 1 ***Thoracophagus monster***

The patient's post-operative period was uneventful and she was discharged on the eight postoperative day.

Discussion

Conjoined twins are rarely encountered and very few obstetricians are confronted with thoracopagus twins in their professional life.[6] The birth of conjoined twins is therefore still received in various parts of the world today with emotions.

Correspondence

The antenatal diagnosis of conjoined twins is uncommon. Although an antepartum diagnosis of twins is often made, the fact that they are conjoined is usually not determined until late in gestation or during parturition.[9-10] The diagnostic modalities available for antenatal diagnosis of conjoined twins include radiography, ultrasonography and magnetic resonance imaging. Of these, radiography was the principal diagnostic modality formerly used in antenatal evaluation of conjoined twins, Gray and associates,[11] established a list of criteria for antepartum diagnosis of conjoined twins: (1) the heads are at the same level and body plane; (2) the spines are in unusual proximity; (3) the spines are unusually extended; (4) the fetuses do not change position relative to each other after movement or manipulation. Ultrasonography and magnetic resonance imaging are relatively newer but are more accurate modalities for antenatal evaluation of conjoined twins. In fact, Apuzzio et al,[12] reporting a case of prenatal diagnosis of conjoined twins found the fourth criterion of Gray and associates to be most important but superceeded by ultrasonography in prenatal diagnosis of conjoined twins.

The present case like most of the previously reported ones was diagnosed during delivery. In an environment such as ours where majority of pregnant women do not avail themselves of antenatal care despite the availability of these diagnostic modalities the chances of antepartum diagnosis of conjoined twins is very remote. For even in advanced societies where situations are ideal only a few cases of conjoined twins have been diagnosed prenatally.[12]

Except where labour occurs prematurely or the fetuses are macerated, vaginal delivery is virtually impossible in conjoined twins as obstruction is inevitable. Few cases have however been reported in which vaginal delivery was possible in cases of thoracophagus twins presenting as vertex at term. The more common mechanism of labour described in these cases is that one of the heads is born first and the other occupies the space between the chin of the first twin and its chest. The second head is then expelled with the help of traction on the first and the two bodies are then delivered simultaneously.[3,13] In the case presented, one of the head was born but vaginal delivery was not contemplated because of evidences of ruptured uterus. Accordingly, laparotomy was performed. Occasionally, where the uterus is intact vaginal delivery may be achieved by destructive operations (Craniotomy, decapitation or evisceration) to diminish the fetal bulk as reported by some workers.[4,6,14]

Aird,[15] has remarked on the prominence in Nigeria of conjoined twins. The implication of this is that it behoves on all obstetricians practicing in our environment to have a high index of suspicion and to carry out a complete antenatal evaluation of cases of twins pregnancies.

These twins, like the heteropagus conjoined twins of NDU Sule, Nigeria[16] are also of special historical interest because they come from Sokoto province which was the home of the first reported Nigerian conjoined twins separated by McLaren in 1935.[17]

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Eosinophilic enteritis -A diagnostic dilemma

*J.N.A. Clegg- Lamptey, Y.Tettey[1], E.K. Wiredu[1], and E.Y. Kwawukume[2]
Departments of surgery, Pathology[1] and Obstetrics/ Gynaecology[2]
University of Ghana Medical School
P.O. Box 4236, Accra

Summary

Eosinophilic enteritis is a rare condition of unknown aetiology, although it is generally believed to be due to intestinal allergy. It may mimic peptic ulcer, subacute (or chronic) intestinal obstruction, gastroenteritis, irritable bowel syndrome, and inflammatory bowel disease. The diagnosis is often difficult to make and most cases are only diagnosed after laparotomy/ laparoscopy and biopsy. It can be successfully treated with corticosteroids. We report a case of Eosinophilic enteritis in a 27 year old woman the symptoms of which appeared within six weeks of childbirth. With repeated episodes of abdominal pain, vomiting , occasional loose stools with weight loss, she was investigated and treated for many weeks in three hospitals without success. All investigations were inconclusive. Finally laparotomy revealed inflamed segments of small bowel, a biopsy of which showed Eosinophilic enteritis. The patient was subsequently treated successfully with Prednisolone.

Keywords: ***Eosinophilia, Enteritis, Gastroenteritis, Abdominal pain, Intestinal obstruction, Laparotomy, Corticosteroids***

Résumé

Eosinophilic enteritis est une condition rare de aetiology inconnu , bien qu'il soit généralement cru pour être grâce a l'allergie de intestinal. Il peut imiter, subacute (ou chronique) intestinal, gastroenteritis, irritable intestin, et inflammatory intestin. Le diagnostic est souvent faire et la plupart des cas seulement sont après diagnostiqué laparotomy/laparoscopy et biopsie. Il peut être traité avec succès avec corticosteroids. Nous rapportons un cas de Eosinophilic enteritis dans un 27 ans femme les symptômes de qui ont apparu dans six semaines de childbirth. Avec répété episodes d'abdominal doleur, vomiting, occasionnel detache tabourets avec, elle a été examiné et a été traité pour beaucoup de semaines dans trois hôpitaux sans succès. Toutes investigations étaient peu concluantes. Finalement laparotomy a revele des segments enflammés de petit intestin, une biopsie de qui a montré Eosinophilic enteritis. Le malade a été traite par la suite avec succès avec Prednisolone.

Introduction

Abdominal pain is one of the most common presenting complaints in surgical practice. In many cases a diagnosis can easily be made after detailed history and examination. Sometimes, especially in subacute cases, it is by more detailed investigations and observing how the clinical features evolve that the diagnosis becomes clear. Occasionally patients with "non-specific abdominal pain" are seen but these tend to be self-limiting. The surgeon very occasionally has to manage the patient whose diagnosis can only be made by laparotomy. Laparoscopy is less invasive and is preferred in such patients. We report a case of Eosinophilic enteritis that posed such a diagnostic dilemma until after laparotomy and biopsy of the intestinal wall.

Case report

A 27-year-old female developed abdominal pain (predominantly epigastric) with vomiting six weeks after delivery. She had no past history of allergies and was referred from a regional hospital to Accra when her symptoms persisted. An upper gastrointestinal endoscopy was reported as "normal." Her symptoms, which were episodic, continued in spite of treatment and she finally referred herself to a third hospital where she was admitted for investigation.

Her main symptoms, when she came to us, were episodic severe colicky abdominal pain, occasional vomiting and constipation and had been ill for seven weeks. On examination she had lost weight but did not look acutely ill. There was no abdominal distension, she had only slight tenderness, and had periods of high-pitched bowel sounds associated with her pain. There were days on which she had no symptoms at all. By the second week of admission she had began to have intermittent blood-stained watery stools. Investigations performed showed a normal total white cell count with eosinophilia of 11%. An ultrasound scan was normal except for some fluid in the rectouterine pouch of Douglas. Stool examination showed no ova or protozoa, but a very high number of red and white blood cells, and no growth on culture. Retroviral screening was negative. Two plain abdominal X-rays 5 days apart showed a persistent air-fluid level formation around the umbilicus. A decision was then taken to perform an exploratory laparotomy.

At operation there was over 1 litre of serosanguinous fluid in the peritoneal cavity. There was no gross dilatation of the intestines but segments of small bowel (two in the ileum and one in the jejunum) were oedematous, red and thick-walled. There were prominent mesenteric lymph nodes. The rest of the abdominal viscera were normal. An impression of Crohn's disease was made and a full thickness biopsy of the ileum done. In view of the fact that multiple segments were involved, no resection was done.

Histology of the bowel (Fig. 1) showed broadening of the villi with elongation of the crypts. Numbers of eosinophils were seen in the mucosa and in the submucosa, which also showed focal densities. The muscularis propria was thickened and contained numerous eosinophils. No parasites were seen. A diagnosis of Eosinophilic enteritis was made.

The patient was put on Prednisolone and her symptoms resolved very quickly. She began to put on weight and is currently on long-term follow-up.

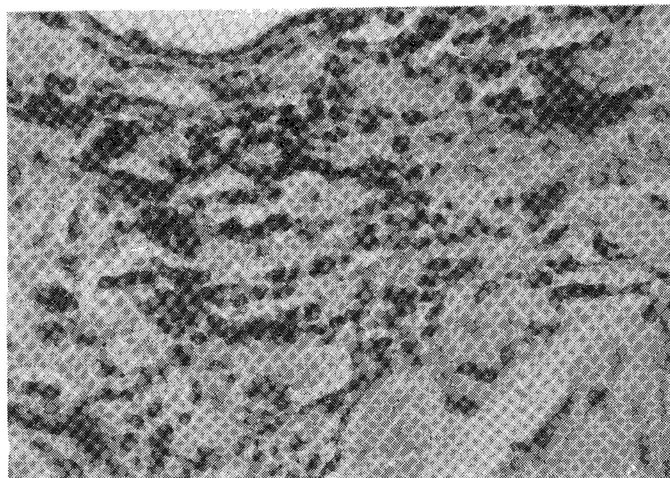

Fig. 1 ***Photomicrograph of ileum showing an intense infiltrate of eosinophils in the mucosa. The submucosa and muscle layer show the same features (x40)***

*Correspondence

Discussion

Eosinophilic enteritis is a rare condition of unknown aetiology and is characterised by eosinophilic infiltration of the gastrointestinal tract.[1-5] The accumulation of eosinophils has been shown to be antigen induced.[6] Previous associations with food allergy, atopic dermatitis and elevated IgE levels suggest an atopic disposition in its pathogenesis.[2] Allergy to the hookworm *Ancylostoma caninum* has been implicated in northeastern Australia where although the more generalised form (Eosinophilic gastroenteritis) is rare, eosinophilic enteritis is fairly common.[1] Allergy to drugs has also been reported.[2] The diagnostic criteria are gastrointestinal symptoms, eosinophilic infiltration proven by biopsy, and the absence of parasitic infection.[2]

The presentation may be varied.[3] In a review of 6 patients presenting with the condition in 10 years in India the symptoms included abdominal pain and vomiting (100%), weight loss (57%), diarrhoea (43%) and abdominal distension (43%). Peripheral blood eosinophilia was present in all patients.[3] The condition may therefore mimic intestinal obstruction,[7] pseudo-obstruction,[8] Crohn's disease,[9] peptic ulcer, diverticular disease,[4] irritable bowel syndrome and nonspecific abdominal pain.

Laboratory results may be nonspecific,[5] although most patients have blood eosinophilia.[3,10] Radiographic findings may show evidence of intestinal obstruction, but may be inconclusive.[5] The diagnosis is made following intestinal biopsy at laparoscopy or laparotomy. When the stomach is affected (Eosinophilic gastroenteritis) endoscopic biopsy will lead to a diagnosis.[11]

The appearance of the bowel at surgery depends on the severity of the disease, whether it is predominantly mucosal, submucosal or muscular.[3] Variable segments of the bowel are involved and this may be confused with inflammatory bowel disease. There is usually oedema of the bowel, ascites and regional lymphadenopathy[1] as was found in this patient. Surgical resection has been used successfully when severe disease is localised.[3,9] Corticosteroid therapy is very effective in treating the condition[3,11] as shown in this patient. There may be recurrence if the offending antigen is not found and eliminated from the diet. In the long term strictures have been known to develop in affected segments of small intestine.[9]

That this patient had a long period of investigation without success is consistent with other reports.[7,10] Although she had a gastroscopy early in the disease a biopsy was not taken probably because the stomach looked normal. Later in the disease her symptoms mimicked chronic/subacute intestinal obstruction but did not warrant laparotomy without further investigations. Stool tests showed no intestinal parasites but showed the presence of red and white cells. Screening for retroviral infection was done on account of the weight loss and episodic diarrhoea. She did have an eosinophilia of 11% but it was the evidence of some degree of obstruction in the radiographs and the fact that the condition had persisted for so many weeks that prompted the decision to operate.

It is suggested that fibreoptic endoscopic biopsy might be needed to identify Eosinophilic gastroenteritis if an allergic patient with blood eosinophilia complains of severe gastrointestinal symptoms.[11] The biopsy should then be performed even if the stomach appears quite normal. Laparoscopy is another useful option and surgeons should continue to encourage its use in similar patients with ill-defined abdominal pain, nonspecific laboratory results and radiological findings that are inconclusive and do not allow one to initiate appropriate therapy.[5] Where laparoscopy is not available, laparotomy may have to be the last resort.

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Hydrocephalus, Ventriculo-Peritoneal shunt and Cerebrospinal fluid ascites.

* O. P. Binitie[1], S. A. Abdul-Azeim[1] and S. H. Annobil[2]

[1] Department of Neurosurgery, Assir Central Hospital, P. O. Box 34, Abha, Saudi Arabia; and
[2] Department of Child Health, King Khalid College of Medicine, Abha, Saudi Arabia.
P. O. Box 34, Abha, Saudi Arabia.

Summary

A small number of patients with congenital hydrocephalus, who have been treated effectively with ventriculoperitoneal shunts, develop progressive increase in abdominal girth, due to cerebrospinal fluid ascites. This abdominal distension can produce respiratory difficulties that require endotracheal intubation and ventilator support. The respiratory difficulties and the abdominal distension were eliminated when the ventriculoperitoneal shunt was converted to a ventriculoatrial shunt in each of the three cases presented in this paper for discussion.

Keywords: *Hydrocephalus, Ventriculoperitoneal (vp) shunt, Cerebrospinal fluid (CSF) ascites, Ventriculoatrial (VA) shunt.*

Résumé

Un petit nombre de patients, avec congenital hydrocephale, qui ont été traite avec success par shunts ventriculo-peritoneal, development une augmentation progressive de la sangle abdominale, due a la formation d'ascite par le liquide cephalo-rachidien. Cette distension abdominale peut produire des difficulties respiratoires necessitant une intubation endotracheale avec ventilation. Les difficulties respiratoires et la distension abdominale ont été corrigees par le remplacement du shunt ventriculo-peritoneal par un shunt auriculo-ventriculaire dans chacun des trois cas presentes dans la discussion.

Introduction

Patients with congenital hydrocephalus are usually effectively treated using a CSF shunt diversion technique. Insertion of a ventriculoperitoneal shunt remains one of the most commonly used neurosurgical techniques for treating hydrocephalus[1,2]. A small number of these patients however, fail to respond to this CSF diversion method because of overproduction of cerebrospinal fluid or impaired ability of the peritoneum to absorb the CSF[3]. The latter results in excessive accumulation of CSF in the peritoneal cavity, eventually producing ascites, and gross abdominal distension with concomitant respiratory distress. Previous shunt infections may be responsible for the reduced capacity of the peritoneum to absorb fluid. The accumulation of protein-rich CSF in the peritoneal cavity produces a reversed osmotic gradient with the hypo-osmolar plasma and further aggravates the ascites.[4]

Case 1

A 5-month-old male Saudi infant developed a fever, opisthotonus, flaccid paraplegia and blood in the ventricular CSF, for which neurosurgical consultation was sought, in Assir Central Hospital, (ACH) Abha, Saudi Arabia. Relevant positive findings included CT and MR brain scans. These showed intraventricular haemorrhage and multiple small-scattered hyperdense lesions in the brain. MRI of the spinal cord showed an anteriorly located intramedullary serpiginous hyperintense arteriovenous malformation of the cord at C2 and at C7-T1 levels. Patient had to be ventilated because he could not maintain satisfactory blood gases levels. Repeated ventricular aspirations cleared the CSF of blood. This was confirmed by serial follow up CT brain scans, which in addition showed progressive ventriculomegaly coupled with periventricular luscency. A low-pressure right VP shunt was duly inserted and this dealt with the hydrocephalus. Over the next 10 days, the abdomen was noted to progressively increase in girth with concomitant respiratory distress. The ventriculoperitoneal shunt was then converted into a ventriculoatrial shunt. This successfully relieved the respiratory distress and abdominal distention.

Unfortunately at the age of 16 months, patient succumbed to candida septicemia, due to a huge fungal growth on the tricuspid valve. He died one month later in spite of appropriate care and antifungal treatment.

Case 2

A 2- year-old Yemeni girl with congenital hydrocephalus for which a left sided VP shunt was inserted in another hospital, shortly after birth, presented to the Emergency room of A. C. H., with inflammation of the shunt track. The left VP shunt was removed.

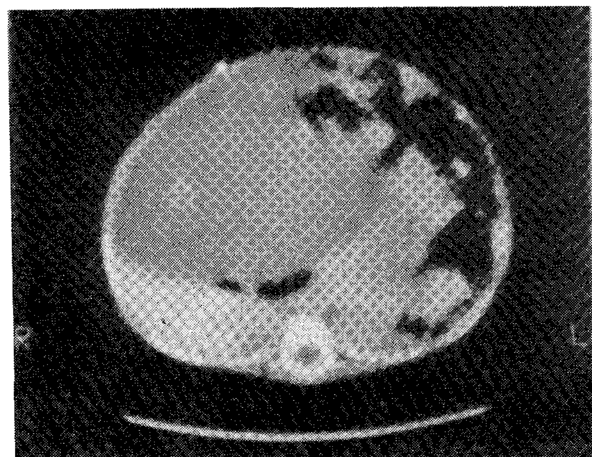

Fig. 1 *Abdominal CT scan showing the distended abdomen with CSF displacing the bowel to the left. Hounsfield units of CT measurements: (1) Liver 73.5 SD = 5.4(2) CSF 17.9 SD = 4.6*

There was no bacterial growth from the shunt tips and the CSF, as patient had a full course of antibiotics in another hospital before she was referred to A.C.H. A right VP shunt with a low-pressure valve was subsequently inserted in the operating room under general anesthesia. Patient had an uneventful postoperative period and was discharged home to out patient neurosurgical follow up. Over a period of two months at home, the parents observed a progressive increase in abdominal girth. When breathing became very difficult and the child could not take much food orally, the child was brought to the Emergency room. Physical examination showed an afebrile, dyspnoeic child, with stable vital signs, gross abdominal distension and a functioning right VP shunt. CT scan of the abdomen confirmed CSF ascites. This abdominal distension cleared up when the right VP shunt was converted into a right VA shunt in the operating room, under general anesthesia. Post operatively, she was able to breathe normally and improved. She was discharged home to out patient neurosurgical follow up.

Case 3

A 10-month-old Saudi male infant, born with a large head, which was increasing in size, had a CT brain scan done. This demonstrated congenital communicating hydrocephalus, for which

* Correspondence

a right low-pressure ventriculoperitoneal shunt was inserted. Progressive increase in abdominal girth and respiratory difficulty were noted 6 days post operatively. Gastric lavage and rectal tube insertion did not resolve the problem, in spite of audible bowel sounds and the passage of stool by the patient. Five days later, he developed a fever, which was proven by culture of the CSF to be due to *Escherichia coli,* ventriculitis. Removal of the VP shunt, repeated ventricular aspirations and intrathecal as well as parenteral antibiotics successfully treated the ventriculitis. Serial CT brain scans showed compartmentalization of the lateral ventricles. Abdominal CT scan as well as paracenthesis confirmed the fluid to be CSF. A right VA shunt was subsequently inserted under general anesthesia in the operating room. Post operatively, the abdominal girth and respiration returned to normal. Patient has been well three months since he was discharged home and he is being followed up in the out patient clinic.

Discussion

All three patients were infants who had communicating hydrocephalus and had been effectively treated with a functioning ventriculoperitoneal shunt. Early abdominal distention occurred within two weeks, of the shunt insertion in two of them, while there was a two-month interval in the third patient. Longer periods of delay before the manifestation of CSF ascites have been recorded in the literature,[5, 6] These are a 17-year-old male patient with hydrocephalus, treated with a VP shunt and subsequently developed ascites due to cerebrospinal fluid accumulation, 11 years, afterwards (5) and a 15-year-old girl, with hydrocephalus and a ventriculoperitoneal shunt who 12 years, afterwards, developed CSF ascites. Both were successfully treated with the insertion of ventriculoatrial shunts. The abdominal distension in our three patients was confirmed both by plain abdominal x-rays, ultrasound, CT and MRI studies, as well as chemical analysis of fluid aspirated, to be due to excess cerebrospinal fluid in the peritoneal cavity. All the patients had audible bowel sounds, passed faeces and had no evidence of mechanical intestinal obstruction (Fig. 1). The abdominal distension was the cause of the respiratory distress and this was eliminated when the functioning VP shunt was changed to a VA shunt. Ventriculitis was common to all the cases. *E. coli, Staphylococcal epidermides* and *Staphylococcus aureus* were the bacteria grown in the CSF. Intrathecal and parenteral antibiotics successfully treated the CSF infection.

Conclusion

Cerebrospinal fluid ascites is an entity, which is not uncommon and can occur as a complication in patients who have a functioning ventriculoperitoneal shunt inserted because of hydrocephalus. Abdominal distention is due to fatigue in the absorptive capacity of the peritoneal cavity. A reversed osmotic gradient in the peritoneal cavity, due to infection and accumulation of protein rich CSF, are usually the cause. This may occur early or late. Ventriculoatrial shunt insertion is a satisfactory method of dealing with the problem.

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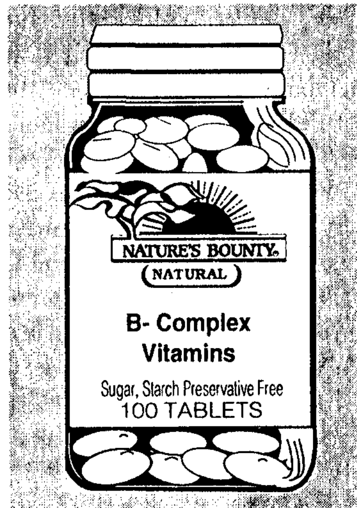

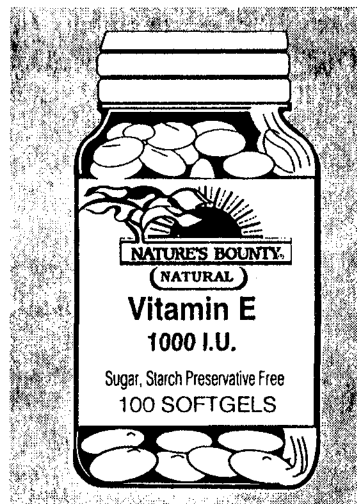

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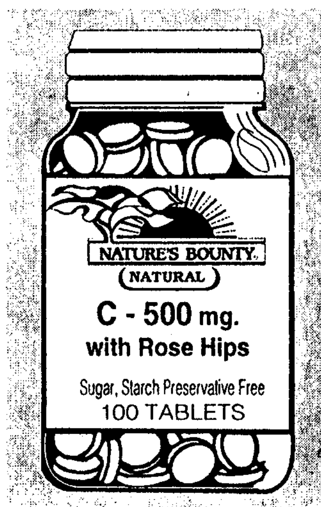

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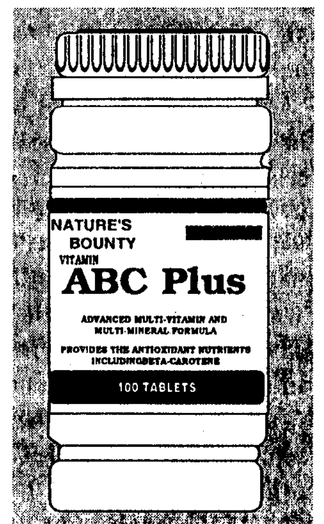

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Giant frontal sinus mucocoele with intracranial extension and orbital displacement in an elderly Nigerian

F. O. Arole[1], A. A. Olaitan[2] and *O. A Fatusi

*Department of Oral and Maxillofacial Surgery, College of Health Sciences, Obafemi Awolowo University, Ile-Ife, [1]Postgraduate Residency Programme Training Unit, General Hospital, Ikeja, Lagos and [2]Maxillofacial Unit, Kaduna, Nigeria

Summary

Mucocoele of the frontal sinus presents with initial sign of forehead swelling in about 10% of cases, and cases with huge intracranial extension have been reported to be rare. We present a case of a giant frontal sinus mucocoele with intra-cranial and intra-orbital extensions exerting a mass effect on the anterior cranial fossa in a 78 year old Nigerian female with resultant forehead swelling, proptosis and total blindness of the left eye. Diagnosis was made on clinical and radiological basis, and enucleation using coronal flap approach was done. Immediate repair of the resultant frontal bone defect was effected through the use of a curved 0.5mm stainless steel wire fixed in 3 layers across the defective frontal bone over which the soft tissues of the forehead were undermined for primary closure on sound bone. This approach was considered more appropriate than a split rib graft in view of the patient's age. No evidence of recurrence was recorded during a one-year post-surgery follow-up, suggesting that mucocoele, regardless of size can be treated with conservative surgical approach provided all cystic lining and mucocoele are removed.

Key words: ***Frontal sinus, Mucocoele diagnosis, Mucocoele complications, Surgical flaps, Aged.***

Résumé

La mucocoele du sinus frontal a montré les signes du début à l'égard de l'enflure au front chez environ 10% des cas, et on a remarqué que les cas avec une grande extension intracranie étaient rares.

Nous présentons un cas d'une mucocoele sinus frontale énorme avec les extensions intra-crânien intra-orbital qui exerce l'influence de sa pression sur le crânien antérieur fossa chez une femme nigériene âgée de 78 ans avec le résultant l'enflure au front, proptosis et aveuglement total dans l'œil gauche. On avait fait la diagnose à travers les méthods cliniques, radiologique et enucleation tout en utilisant la démarche coronal flap. On avait opéré tout de suite un défaut surgissant à partir d'os frontal à l'aide d'un acier métallique d'une longueur de 0,5mm courbé et attaché en trois couches en travers l'os infecté, l'os frontal par-dessus lequel on avait traité les tissus mou du front à travers l'occlusion primaire sur la sonde d'os (sound bone). Cette démarche est très efficace au lieu de split rib graft, la greffe de la côte gerçure, en considération de l'âge du malade.

On n'a pas noté aucune marque de la récidive pendant la durée d'une année postopératoire c-à-d soins post-hospitaliers.

Par suite, on peut dire que la mucocoeles, sans se soucier des grandeurs, porrait se soigner à travers la méthode chirurgique préservative pourvu que tous les mucocoeles et les cystites garnissages aient enlevé.

Introduction

Mucocoeles are cystic bony expansions of the paranasal sinuses, which contain mucoid, and epithelial debris as a result of obstruction of normal drainage through ostia[1]. These arise in the frontal, ethmoidal, or sphenoidal sinuses and present clinically as effects of mass lesion. These lesions are low reflective, non-vascular and are very well outlined. Mucocoeles have a very firm consistency and may cause indentation of the eyeball. They are always associated with a large bony defect through which the lesion extends from the sinus into the orbit[2,3,4]. The contents of the mucocoele may be thin serous fluid, thick mucoid material, and at times, caseous material that justifies the term "sinusitis caseosis". When the contents are drained, they are almost always sterile. Thick chocolate brown material is found if haemorrhage has occurred, cholesterol crystals in the degenerating contents of the mucocoele may also be seen. The term suppurating mucocoele or pyocoele is used when the contents of the cavity are purulent as a result of infection due to either repeated incisional or aspiration biopsies.

Mucocoele of the frontal sinus can be defined as the accumulation and retention of mucous secretion within the sinus owing to obstruction of its outlet with thinning and possible distention of one or more of the walls of the sinus. The condition can either be primary or secondary in nature. The primary mucocoele is said to arise as a cyst from goblet gland, which grows to such as an extent as to expand the sinus. The secondary type is due to outlet obstruction[4]. The three most important causes of outlet obstruction resulting in the formation of a frontal sinus mucocoele are inflammatory changes in the fronto-nasal duct, external trauma to the frontal sinus and growth such as osteoma in the region of the fronto-nasal duct[4]. Other causes of fronto-nasal duct obstruction include allergy, polyposis, tumour metastasis, sudden barometric pressure changes and neuro-surgical procedures involving the frontal sinus[4]. Irrespective of its cause, untreated frontal sinus mucocoele has the tendency to grow bigger and extend both intra-cranially and intra-orbitally. Giant cases of frontal mucocoele are rare[5] and as recorded in our case, do present with complications such as orbital displacement, proptosis and eventual blindness of the affected eye.

Case report

A 78-year old Nigerian woman presented with a [illegible]5 year history of gradually increasing, painless swelling in the frontal bone region. Examination revealed a non-tender, fluctuant swelling bulging forward beyond the bridge of the none (Fig 1). Proptosis with loss of vision on the left eye was also recorded. Aspiration biopsy revealed a thick black-greenish fluid. Radiographic examination showed a large radiolucent area in the frontal sinus with destruction of the frontal bone (Fig 2). Baseline haematological investigations were essentially within normal limits. Based on the foregoing, a diagnosis of frontal mucocoele was made. The patient was admitted for surgery and under naso-endotracheal intubation, a bicoronal flap was raised to expose the lesion and its intra-cranial extension. The thick cystic lining of the mucocoele together with its contents were completely removed and the left eyeball was also enucleated. Consequently, there was immediate collapse of the soft tissue overlying the defect. The resorbed frontal bone was reconstructed with 0.5mm gauge stainless steel wire curved, shaped and fixed into three holes drilled on each side of the remnant of the frontal bone. Thus, the three rows of the wire overlay the resorbed frontal bone and it was over these that the soft tissues were stretched to achieve primary closure on a sound bone. Vacuum drainage was inserted for 72 hours. The patient was placed on

*Correspondence

amoxycillin capsule 500mg 8hrly for 7 days and ibuprofen tablet 400mg 12hrly for 3 days. Healing was uneventful and the patient was discharged home after 14 days. Follow-up appointments were fixed at three monthly interval and no complication was recorded during the first post-operative year. The patient was, however, lost to follow-up after the first year.

Fig. 1 ***Giant frontal sinus mucocoele with orbital displacement. Note the collapsed frontal swelling after spontaneous rupture.***

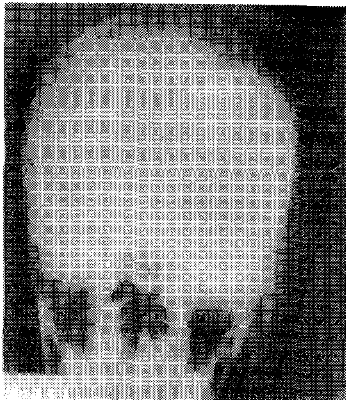

Fig. 2 ***Posterior anterior radiograph of the skull showing intracranial extension as a radio-opaque area.***

Discussion

The frontal and ethmoidal sinuses are the most common sites for the development of mucocoele. The condition occurs when the drainage from a sinus is blocked by obstruction of its osteum, usually from inflammation. Long standing sinusitis may be a predisposing factor, but it is not always elicited in all patients with mucocoeles. Other possible causes of osteal obstruction are osteomas, fractures, polyps, scarring, congenitally narrow osteum, nasal septum deviation and obstruction of the mucous glands of the sinus, which leads to their dilatation with the accumulation of inflammatory material or blood in the submucosa of the sinus lining. The stenosis of the osteum is most likely to occur in the frontal sinus where the narrow duct, approximately 2mm wide, passes for a distance of 5-10mm through the ethmoid bone in close relationship to the anterior ethmodal sinus[6]. Once blockage of the osteum is established, pressure develops within the involved sinus. A slow expansion of the sinus space, thinning and erosion of the bone and displacement of the bone together with encroachment of the mucocoele on contiguous structures such as the cranial nerves, the extra-ocular muscles, and the optic nerve occurs thereafter. As the sinus expands with pressure, erosion of the bony walls occurs and the thinnest section - the orbital wall of the horizontal part will most often in 90% of cases give way first and the mucocoele will continue to expand into the orbit[6]. The displaced bone may produce new bone. In 10 percent of cases of frontal sinus mucocoeles the anterior wall will erode first and the swelling appear on the forehead as recorded in the present case.

Frontal sinus mucocoeles can cause enlargement of the forehead and downward displacement of the eye, whereas ethmoidal mucocoeles can cause lateral displacement of the eye[7]. A frontal mucocoele usually presents under the anterior orbital rim and displaces the eye downward and outward rather than forward. Diplopia on extremes of the lateral gaze is an indication of extra-ocular imbalance from the enlarging mucocoele. The posterior frontal mucocoele, another variant, expands posteriorly towards the optic foramen instead of under the orbital rim and the picture may elude detection of the only signs which are those of frontal lobe compression. On palpation, there may be a crepitant feel, due to the thin underlying "egg-shell" bone. The swelling is usually painless and spongy.

Radiological examinations are the standard diagnostic procedures. Dural involvement and intracranial extension of the mucocoele can be diagnosed pre-operatively by occipitomental view of the skull and by lateral skull tomography to show the lateral wall of the frontal sinus. When available, CT scan also give valuable information regarding intracranial extension[8]. Mucocoele may demonstrate a hypointense or hyperintense signal on magnetic resonance imaging, depending on the concentration of proteinaceous or inflammatory fluid components. Although the walls are well delineated, the integrity of the expanded bony walls of the sinus cavities cannot be assessed as well as by CT scan[9,10]. A pathognomonic diagnostic finding is emphysema around the eye when the patient sneezes, as a result of the bursting of the wall of the partially aerated mucocoele. Such a development leads to an acute inflammatory response, because of the release of irritating, degenerating and cholesterol material contained within the sinus. Perhaps the most difficult cystic tumours to distinguish from mucocoeles are dermoids and epidermoids that occur within the bones of the orbit and sinuses[11,12]. Dermoids usually occur at the suture lines of bones, but they may occur deep in the orbit and in the greater and lesser wings of the sphenoid. In the case of dermoids, x-rays will reveal expansion of the inner and outer tables of the diploic bone without concomitant enlargement or dissolution of the sinus.

Surgical treatment entails stripping the mucosa from the sinus wall to prevent recurrence, and packing the sinus. Several controversies still exist regarding the surgical approach used in the management of paranasal sinus mucocoeles[13]. However, osteoplastic flap of the frontal sinus, described by Macbeth over 40 years ago, is still the best surgical approach for the diagnosis and definitive treatment of the disease[14]. It is indicated for complete removal of mucous membrane and sinus obliteration. The surgical approach can be coronal, brow, or hermicoronal. Other approaches that have been associated are lateral rhinotomy, sublabial and intranasal[14]. Complications of the surgical management may include dural tears with leakage of cerebrospinal fluid (intra-operatively), frontal deformity, persistent frontal anaesthesia and supraorbital nerve neuralgia (postoperatively). The coronal incision has proved to be the principal surgical approach to the frontal region of the head. As evidenced in the management of our case, it gives a wide operation view and allows for a well-hidden scar[15]. Except where there is an evidence of an extension intracranially the incision line can be placed a few centimetres above the frontal sinus: incision line in the creases of the forehead generally gives an excellent cosmetic result. Possible disadvantages of this approach include the long distance that may be involved between the incision line and the location of the lesion, and possibility of severe haemorrhage . Numbness of the forehead and formation of a large keloid in patients who are prone to keloid formation may also occur. The midforehead incision, described as brow-lift in the literature, is a cosmetically acceptable alternative to the coronal incision for patients with forehead wrinkles or who are at risk for male pattern baldness. The use of a midforehead approach has been advocated in patients

with hairline recession and elderly or infirmed patients who can not tolerate prolonged procedures or significant blood loss[15].

The use of endoscopic sinus for marsupialisation and drainage in the management of mucocoeles of the paranasal sinuses is receiving increasing attention in the literature[16-19]. Although some aspects of endoscopic sinus remain controversial and are poorly understood[16], it is generally viewed as a safe and reliable approach, which obviates, the need for major cranial surgery and reduces post-operative morbidity[17-19]. Close follow-up is however required and secondary decompression can be carried out in cases of recurrence.

The use of methyl methacrylate and wire mesh for the repair of frontal bone defect in surgical management of frontal sinus mucocoele has been documented[20]. In our case, the immediate reconstruction of the frontal bone defect was carried out using a curved 0.5mm stainless steel wire fixed across the defect in three rows over which the soft tissues of the forehead were stretched. This approach enabled us to avoid the alternative of a split rib graft that could have given additional discomfort to our aged patient. The use of ionomer-based cement, a new bone replacement material (Ionocap®) as bonding material for certain complicated frontal sinus diseases requiring osteoplastic surgery has recently been reported by Weber and colleague[21]. In comparison with the use of metal osteosynthesis, they reported that the use of bone cement was easier, faster and achieves, at least, equivalent functional stability, and improved cosmetic outcome. No case of rejection of osteonecrosis of the material was recorded. Based on this result, Weber and his team recommend the use of ionomer-based cement, but caution that the guidelines of the supplier are 10 years strictly followed[21].

Failure to ensure complete removal of the lining of the mucocoele during surgery could lead to recurrence after 5 – 10 years. A long-term follow-up is also necessary to determine the benign nature or otherwise of fronto-ethmoidal sinus mucocoele particularly those of long standing duration of say, 35-40 years. However, once the surgery has been performed and all the symptoms disappear, patients are often loss to follow-up. Reasons for this in our environment include ignorance, economic burden of transportation, hospital consultation, movement to other locations and death from other causes. Thus, in a developing country like Nigeria, long-term follow-up of mucocoele patients is a very great challenge that may not be easily surmounted.

Conclusion

Untreated frontal sinus mucocoele will grow extensively to involve the anterior intracranial fossa and exert pressures on neighbouring tissues and organs to cause such complications as orbital displacement and blindness of the affected eye. The goals of the treatment of frontal sinus mucocoeles are the relief of symptoms due to compression and the prevention of recurrence through surgical management. As mucocoeles are largely benign in nature, it is advisable to choose a surgical approach that minimises the surgical trauma[22]. From our experience, a bicoronal flap presents an optimal surgical approach to the giant lesion as it gives excellent visibility and access.

Collapse of the soft tissues of the forehead after enucleation in a 78-year-old patient is a big problem. Secondary reconstruciton of the defect of the frontal bone with a split rib graft is usually not acceptable by old patients and gives additional discomfort, which may be best avoided. We were able to solve this problem by using curved 0.5mm stainless steel wire fixed across the frontal bone defect in three rows over which the soft tissues of the forehead were stretched to allow primary closure on a sound bone after trimming off the excess soft tissues. The curved ends of the wire terminated inside the anterior intracranial fossa through the holes drilled on either side of the remnant of the frontal bone. This procedure from our experience gives no discomfort to the patient and is well tolerated. For the one-year period that the patient reported for follow-up, before she eventually defaulted, no complication was recorded.

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Chronic subdural haematoma: Review of 96 cases attending the Korle Bu Teaching Hospital, Accra

*T. K. Dakurah, M. Iddrissu, G. Wepeba and I. Nuamah[1]
Division of Neurosurgery, Department of Surgery, University of Ghana Medical School
[1]8 Foxland Road, Gatley, Cheadle SK8 4QA, UK

Summary

Background: **Chronic subdural haematoma is not uncommon in Africa. Early diagnosis and treatment is satisfying. Simpler operative procedures are generally effective. This review is meant to find out the situation regarding the condition in Ghana.**

Study design: **A retrospective study of patients with chronic subdural haematoma admitted to and treated by the Neurosurgical Unit of Korle Bu Teaching Hospital between January 1995 and December 1998 was undertaken. The case notes, computerise axial tomography (CT) scans and operative records were reviewed and the relevant data extracted. Incomplete records were excluded.**

Results: **96 patients were involved. The mean age of the patients was 46.9 years, with male to female ratio of 16: 1. The most common presenting feature was headache (64.7%). Time of injury to presentation was about 2 months. 81 were treated using burr hole and drainage and 15 by craniotomy and stripping of membranes. Eighty four were treated under general anaesthesia. Two were reoperated on because of recurrent bleed. There were two (2) deaths. Ninety patients had a Glasgow Outcome Score of good at the time of their last review.**

Conclusion: **The data suggests that burr hole and closed drainage is a very effective method of managing CSDH.**

Key-words: *Chronic subdural, RTA, Headaches, CT scan burrhole, Local anaesthesia.*

Résumé

Introduction: Subdural haematoma Chronique nest pas rare dans l'Afrique. Le diagnostic et le traitement premiers satisfont. Les procédures opératives plus simples sont généralement efficaces. Cette revue est signifiée pour découvrir la situation en ce qui concerne la condition dans Ghana.

Plan d'étude: UNE étude rétrospective de malades avec subdural haematoma chronique a avoué et traité par l'Unité de Neuroligical de Korle Bu enseignant l'Hôpital entre le 1995 janvier et le 1998 décembre a été entrepris. Le cas note, informatisé la tomographie axiele (CT) les balayages et les rapports opératifs ont été réexaminés et les données pertinentes extraites. Incomplet a été receords exclu.

Les résultats: 96 malades ont été impliqués, avec un âge moyen de 46,9 années, re l'âge moyen des malades était 46,9 années, avec le mâle à la proportion femelle de 16: 1. La caractéristique présente la plus commune était le mal de tete (64.7%). Le temps de blessure à la présentation était a peu près 2 mois. 81 ont été traités utilisant le trou de barbe et le drainage et 15 par craniotomy et dépouiller de membranes. 84 ont été traités sous l'anesthesie generale. 2 ont été reoperated sur parce que de récurrent saigner. Il y avait deux (2) les morts. 90 malades avaient un Score d'Issue de Glasgow de bon lors de leur dernière revue.

Conclusion: Les données suggèrent que ce trou de barbe et le drainage fermé est une méthode très efficace de gérer de SDHC.

Introduction

Chronic subdural haematoma (CSDH) is one of the most common type of intracranial haemorrhage. Early diagnosis and treatment can lead to complete recovery. However late diagnosis can be fatal[1]. The accumulation of blood in the subdural space is usually due to tearing of bridging veins. Little force is required to tear these veins and the initial injury may be trivial.

Blood accumulation can also be due to cerebral laceration principally at the temporal poles or due to arterial rupture[2]. Cerebral compression can be acute (up to three (3) days) or may be delayed for weeks or months or years with formation of liquid chronic subdural haematoma[3].

According to Mellegard et al. the mean age is 70.5 years and the male: female ratio is 2:1[4] but can be as high as 5: 1[5]. The most common aetiological factor is head injury followed by anticoagulant therapy[6]. Blood dyscrasias, excessive alcohol intake and arterial hypertension have also been associated with CSDH[4,6]. The symptoms can be non-specific, however headache is the most common presenting feature in all age group. Also altered levels of consciousness, memory impairment and occasionally lateralising signs including weakness of one side or the other[5,6] may occur. Presently diagnosis is usually established by computerised tomograhy (CT scan) and also magnetic resonance imaging (MRI). These have contributed enormously to early diagnosis and treatment[4,5,6,7].

There is agreement that operative treatment is indicated but there is still controversy as to which technique is best[8,9,10,11]. Some workers suggest that simpler procedures are very effective[12,13]. This review is meant to find out the situation regarding the condition in Ghana.

Patients and methods

We carried out a retrospective study of the hospital records of 96 patients with CSDH attending KBTH. All cases were seen at the Neurosurgical unit over the period January 1995 to December 1998. The various clinical features were recorded and analysed using Microsoft Excel. Diagnosis was established by CT scan in all cases. The mode of treatment was either burrhole and closed drainage or craniotomy and stripping of membranes. The outcome in

* *Correspondence*

each case was assessed using the Glasgow Outcome Score (GOS).

Result

The average age of the patients was 46.9 years with a range of 21 to 75 years. The male: female ratio was 16.1. More than half (62.5%) of the patients presented about two months after an initial traumatic event. The aetiology could be established in 67 (69.8%) of the patients with the most common cause being head injury, mainly due to road traffic accident (Fig 1). Headache was by far, the most common presenting feature followed by contralateral hemiparesis (Table 1).

Table 1 Frequency of symptoms associated with CSDH

Symptom	Frequency	Percentages
Headaches	62	64.6
Weakness	41	42.7
a. Contralateral	37	39.6
b. Ipsilateral	4	4.2
Confusion	17	17.7
Memory impairment	11	11.4
Blurred vision	9	9.4
Vomiting	9	9.4
Seizures	6	6.2

Table 2 Concomitant diseases associated with CSDH

Concomitant disease	Frequency
Hypertension	10
Alcoholism	8
Prolonged labour	1
Psychiatric background	3
Total number	22

Four patients were initially seen at the Department of Medicine where the diagnosis was made and then referred to the neurosurgical unit for operative management, whilst one initially presented at the Ophthalmology Department with complaint of blurred vision. Hypertension was the most common concomitant disease (Table 2).

Table 3 Glasgow coma scale at presentation

GCS	Frequency	Percentages
15	43	44.8
14	19	19.8
13	15	15.6
12	2	2.1
11	4	4.2
< 10	13	13.5
Total number	96	100

Table 4 Frequency of site of haematoma on CT scan

Site	Frequency
Bilateral	11
Left parieto-occipital	4
Left parieto-temporal	4
Left fronto-parieto-occipital	2
Left fronto-parietal	19
Right fronto-temporal	4
Right fronto-parieto-occipital	21
Right fronto-parietal	31
Total number	96

The Glasgow Come Scale recorded at the initial visit is shown in Table 3. Most of the patients presented in a conscious state with 5 presenting as emergencies in coma.

Diagnosis in all cases was by CT scan. The sites of the various haematomas are shown in Table 4. Eighty-four patients were treated under general anaesthetic and 12 under local anaesthetic. There were no complications with the latter technique. Eighty-one (88.2%) were treated by burrhole and drainage and 15(11.8%) by craniotomy and stripping.

Complications were as follows: three patients had

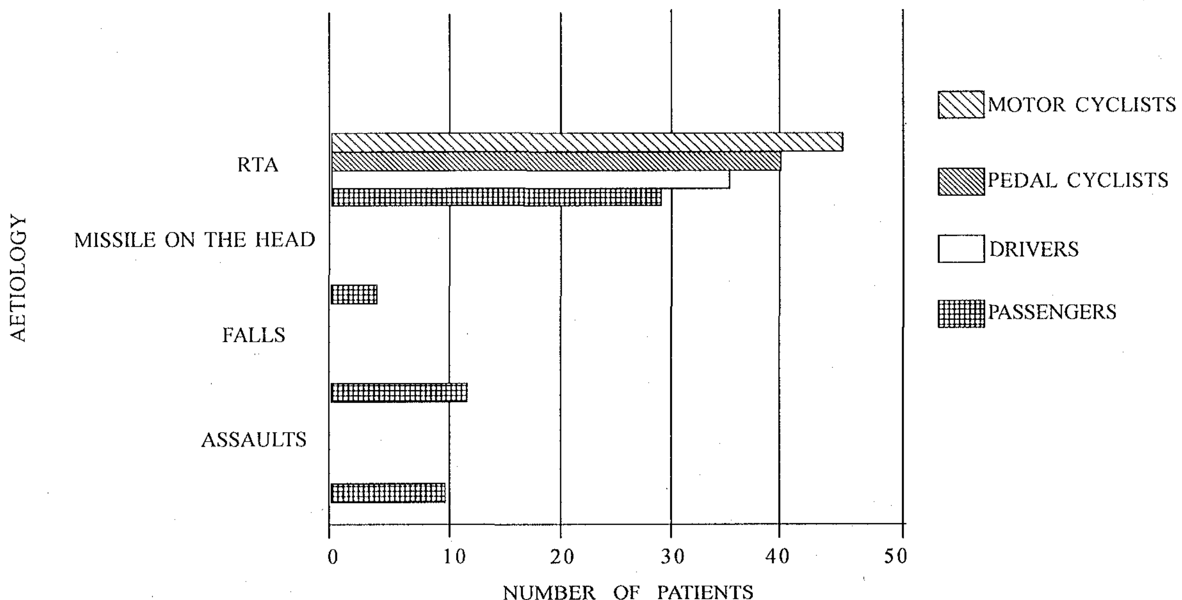

Fig. 1 *Aetiology of head injury in CSDH*

pneumocephalus, 1 had an intracerebral haemorrhage, two had cerebrospinal fluid leakage and 1 patient had a second bleed after burrhole and drainage and so had a second operation which was craniotomy and stripping of membranes. With the exception of the last patient all the other complications were managed conservatively successfully. One patient had memory impairment prior to surgery but this persisted for about 19 months before recovery.

Postoperative CT scan was done at two weeks for all patients and then at any other period when indicated. For all patients with residual haematoma it was repeated at six month. This was the case in 65 patients (67.7%), all of which were considered small.

The average review period was about 20.8 months with a range of 6 - 23 months. Ninety had a GOS of good recovery at the time of their last review. There were two mortalities. One was the patient who rebled and had to have a second operation and the other had a GCS of 3 at referral and repeated generalised seizures.

Discussion

Subdural haematoma has been treated by neurosurgeons since 1956 after it was first described by Wepfer[14]. Recent experimental studies[15, 16, 17] suggest that blood in the subdural space evokes an inflammatory reaction with deposition of fibrin followed by organisation, formation of subdural neomembranes with ingrowth of neocapillaries. Enzymatic fibrinolysis and liquefaction of blood clots then follow. There is increase fibrinolytic activity and the release of fibrin degradation products (FDP's), which are, incorporated into new clots hence no effective haemostasis.

In more than half the patients (57 or 59.4%) in the above study presentation was about two months after the initial injury. We thought this probably represents the interval when the membranes, which are forming, have a significant effect on the central nervous system in most of the patients. This interval also conforms with the findings of Folgelholm et al who observed median intervals of 5 weeks, 7.5 weeks and 10 weeks in the age groups 20 - 29, 40 - 59 and 60 - 79 years respectively. However in our study the fine variation in different age groups could not be matched. The mean age (46.9years) was much lower than that in other studies[6] but comparable to the findings in India where the mode age group was 41 - 50 years[5]. This may suggest that a similar age group is a risk in both societies.

The most common presenting feature was headaches (64.7%). This was also the most common presenting feature in one study[6] however this was not the case in Sambasivan's study[5]. The male: female ratio of 16:1 reflects the epidemiology of head injuries in our society. It was also noted that arterial hypertension was the most common concomitant disease (9.0%) as was the case in one of the above studies[6]. However the incidence of hypertension in a similar general population in Accra was (8 - 11%)[18,19]. About 88.2% of the patients in this study were treated by a single burr hole craniostomy, saline irrigation and closed external drainage for 48 hours or a variable period. Only 11.8% had craniotomy and stripping of membranes. In the latter cases the haematoma was thought to be large with the presence of neomembrane formation on CT scan. Post-operatively no special measures were taken to fill the subdural space. We noticed that no such precautions were needed. Residual haematoma which was small in all cases seemed not to have affected the outcome. These small haematomas tended to disappear if the scan was repeated after six or more months.

Rebleeding, after operation was recorded once in our study. This patient's condition continued to deteriorate with repeated seizures after the operation and was reoperated on 10 days after the initial operation. He was one of the mortalities. The incidence of rebleeding range from 9.2%[15] to 26.5%[21]. The reason for this low incidence in our study is difficult to explain. Our suggestions is that our techniques involve minimal surgical manipulation with burr holes made large enough to allow evacuation of the subdural blood. This accompanied by thorough irrigation of the subdural space and external drainage for 48 hours reduce the load of fibrinolytic substances and probably restrain neomembrane formation. None of the patients were on long term anticoagulants. This may also be a factor in the low incidence. More work however is needed in this area.

The advent of CT scan in Ghana has also contributed enormously to the early diagnosis and treatment of the condition. Our impression is that early diagnosis and treatment of the condition will continue to increase, as the facility becomes available to more Ghanaians. There was no case of infection.

The two mortalities were both in a very poor state when they were referred. One had a recurrent bleed and the other incessant seizures. It is difficult to conclude whether the method used had any bearing on the outcome.

Conclusion

Burrhole drainage is effective and must be considered in all cases irrespective of haematoma size, the presence or otherwise of membranes and also as an initial procedure for recurrent bleeds. In developing countries such as ours relatively younger patients develop CSDH in accordance with the epidemiology of head injuries. The advent of the CT Scan in Ghana has contributed enormously to the early diagnosis and treatment of this condition. Our impression is that as the facility becomes available to many more on a regular basis the detection of CSDH will continue to be in the increase.

Acknowledgment

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The blood and nerve supply of the long head of the biceps femoris muscle; its possible use in dynamic neoanal sphincter

*W. G. Elbarrany[1], Abdulmonem Al-Hayani[2] and S. Softa[3]
Departments of [1]Anatomy and [3]Surgery, Faculty of Medicine, Umm Al-Qura University, Makkah Almokarramah and Department of [2]Anatomy, King's Abdulaziz University, Jeddah, Kingdom of Saudi Arabia
E-mail:ssofta@yahoo.com

Summary

Objectives: **Dynamic graciloplasty is used commonly as a neoanal sphincter to reconstruct the damaged anal sphincter. However, infection of the transposed gracilis and consequent failure of anal reconstruction has been recorded in some cases. An alternative to gracilis muscle should be searched for to reconstruct and replace the anal sphincter.**
Study design: **30 fresh cadavers (20 adult, 10 stillborns) had been used in this study.**
Materials and methods: **The external and common iliac arteries were injected with a mixture of 50% lead oxide and 50% red latex. The long head of biceps femoris was exposed to identify its neurovascular bundle and estimate the whole length of the thigh, the whole length of the long head of biceps and the dominant neurovascular pedicles of the long head of biceps muscle. The functional length of the biceps muscle that is used during the muscle rotation was also calculated. The diameter of the arteries supplying the muscle was measured at their proximal and distal ends using a Swiss mechanic caliber. The thighs of both sides of each cadaver were X-rayed in order to study the vascular architecture of the muscle, and then the biceps muscle was dissected and removed then X-rayed to study the internal vasculature and anastomosis.**
Results: **The study showed that there were four dominant arterial pedicles to the long head of biceps femoris muscle in addition to several minor arterial branches in 90% of the studied cases. In all cases, the inferior gluteal artery gave one major arterial pedicle to the proximal end of the muscle. The radiological study of the vasculature of the long head of biceps muscle during the current study showed the presence of anastomosing arterial loops between the internal iliac, external iliac, femoral and profunda femoris arteries. It also showed the presence of extensive intramuscular anastomosis between the intramuscular branches of the major arterial pedicles inside the long head of biceps femoris muscle. During the present study, it was found that the muscle received a single nerve supply in 97% of the dissected cadavers. This means that about in 58% of the cases, the muscle is available for transposition to wrap the anal canal. The available length of the muscle for rotation was about 57% of the length of the thigh.**
Conclusion: **It can be concluded that, the long head of the biceps muscle can be safely rotated to wrap around the anal canal without serious effect on the main vascular pedicles and its nerve supply.**

Key-words: ***Neoanal sphincter, Biceps femoris, Arterial pedicle, Nerve.***

Résumé

Objectifs: Ordinairement, on utilise la gracilopa tie dynamique comme un sphincter néoanal afin de reconstit er le sphincter anal endommagé. Toutefois, l'infection du gra cilis transposé et l'échec conséquent de la reconstruction an le a été notée dans certains cas. C'est nécessaire de trouver un alternatif par rapport au muscle gracilis afin de reconstit ier er replacer le sphincter anal.
Plan d'étude: 30 cadavres frais (20 adultes, 1(mort-nés) ont été utilisés dans cette étude.
Matériels et méthodes: Les artères iliaqu s externes et ordinaires ont été injectées avec une mixture le 50% oxyde au plomb et 50% latex rouge. La tête longue du femoris biceps était exposé afin d'identifier son tas neu ovasculaire et calculer toute la longueur de la cuisse, la longe ır entière de la tete longue du biceps et les pédicles neurc vasculaire de dominante de la tête long du muscle biceps. La longueur fonctionnelle du muscle biceps utilisé pendan la rotation du muscle était également calculée. On a déterm né le diamètre des artères qui amènent le sang au muscle d ns leurs bouts proximaux et distaux, avec l'utilisation du calil re mécanician du Swiss. On a fait l'examen radiographique les deux côtés des cuisses de chaque cadavre afin d'étudier l'architecture vasculaire du muscle et puis le muscle biceps a été disséqué et enlevé puis on a fait le radiodiagnostic af n d'étudier le vasculature et l'anastomose interne.
Résultat: Cette étude a indiqué qu'il y avait q atre pédicules artères de dominantes vers la tête longue du m ıscle de femoris biceps en plus de plusieures branches des artères secondaires en 90% des cas étudiés. Dans tous es cas, l'artère gluteal inférieur a donné une artère pédicl majeur vers l'extrémité proximale du muscle. L'étude radio ogique du vasculature de la tête longue du muscle du bice s au cours de cette étude a indiqué la présence des boucl s des anastomose artères entre l'iliaque interne, iliaque externe, artères fémoris profunda et fémoral. Il a également indi qué la présence d'une vaste anastomose intramusculaire entr les branches des pèdicles intramusculaires entre les branch s des pèdicles intramusculaires d'artère majeure dans la tête longue du muscle du biceps fémoris. Au cours de cette étude, nous nous sommes rendu compte que le muscle a reçu un seul approvisonnement nerveux en 97% des cas de cadavres disséqués ça signifie environ 58% des cas, le muscle est disponible pour la transposition pour pouvoi envelopper le conduit anal. La longueur de muscle disponit le pour la rotation était environ 57% de la longeur de la cui se.
Conclusion: En conclusion, la tête longue d muscle biceps pourrait être tourné sans danger afin d'envelopper le conduit anal sans un effet négatif ou sérieux sur le péd cles vasculaire

* *Correspondence*

principale et son approvisionnement nerveux.

Introduction

Treatment of patients with faecal incontinence and after surgical resection of the anal sphincter may necessitate replacing the anal sphincter. It is necessary to have a structure which posses resting tone and is able to mount a sustained maximum contraction capable of resisting intra-abdominal pressure. In addition, such a neosphincter needs to retain its ability to dilate and stretch so that evacuation can proceed[1-3]. Previous work in animals had suggested that chronic frequent electrical stimulation of rapid twitch muscle, (Type II) would convert it to a slow twitch muscle (Type I)[4,5].

Dynamic graciloplasty has been demonstrated to be a reliable option in the treatment of end-stage faecal incontinence with stable results after long-term evaluation studies with a long-term success rate of 75%. Continence restoration varies from 40 to 65% depending on incontinence etiology and surgical experience. Key features for a good postoperative contractile response were identified in a careful gracilis mobilization, in a meticulous identification of nervous pedicle and in the prudent early postoperative operative stimulation. Early failures of graciloplasty were shown to be linked mainly to postoperative septic complications, while good long-term results were significantly related to the efficacy of muscular recruitment and careful patients selection[6]. It has been reported[7] that the artificial anal sphincter is a more convenient technique than dynamic graciloplasty. However, technical failures and complications during follow-up that require reoperation are very high in both types of treatments[7]. Moreover, in some patients, the gracilis muscle may be unsuitable or unavailable for muscle transposition[8].

Recently, it was reported that, defecography and a manometeric study showed that the patient could contract the transposed gracilis muscle independently. He can maintain excellent continence without stimulation. They concluded that, electrical stimulation is therefore not always necessary for a good function after dynamic graciloplasty[9].

For a muscle to be used to replace the striated anal sphincter, certain requirements should be fulfilled and include[10, 11]:

1. The dominant vascular pedicles must permit surgical manipulation of the muscle around the anal canal.
2. The nerve supply to the muscle should be such that enmasse contraction of the transposed muscle occurs when the nerve is electrically stimulated.
3. The muscle should be of sufficient length to wrap around the anal canal.
4. The muscle should be expendable.

The aim of the present work is to study the neurovascular bundle of the long head of the biceps to assess its suitability for dynamic neoanal sphincter as an alternative to gracilis muscle.

Material and methods

The material used in this study was 30 fresh cadavers (20 adults and 10 stillborns). The femoral arteries or the common iliac arteries in the pelvis were exposed by vertical incisions below the midinguinal points or by lower paramedian incisions in the abdominal walls.

The arteries were proximally ligated, then canulated and irrigated with normal saline to dislodge blood clots. A dye consisting of a mixture of 50% lead oxide and 50% red latex was injected with moderate maintained pressure using suitable 20 ml syringes. Injection was continued until resistance was encountered or back flow of the dye occurred. The amount of the injected mixture was ranging from 60 to 80 ml (at a mean of 50±2 ml).

Anatomical study

Dissection was started 24 hours following the injection through a posterior midline incision passing from the gluteal region till the middle of the popliteal fossa. The dissection exposed the posterior compartment of the thigh and the gluteal region. The long head of biceps femoris was then exposed to identify its neuro-vascular bundle.

The lengths of the thigh (measured from the uppermost point of the greater trochanter of the femur to the level of the corresponding knee joint) together with the length of the long head of biceps femoris muscle (from the ischial tuberosity till the level of the head of the fibula) were measured.

The following measurements were taken from the inferior border of the ischial tuberosity to:

1. Point of entry of each dominant vascular pedicles of the long head of biceps femoris.
2. Point of exit of venous drainage from the head of the biceps femoris muscle.
3. The point of entry of the nerve supply.
4. The anal verge.
5. The distance between both ischial tuberosities and the distance between the anus and the ischial tuberosity were measured then related to the length of the muscle.
6. The functional length of the biceps muscle that was used during the muscle rotation (the muscle length between the last pedicle sacrificed and the insertion into the head of the fibula).

The diameters of the arteries supplying the muscle were measured at their proximal and distal ends using Swiss mechanic (Vernier) caliber type 6902 with 0.05 mm accuracy. Their mean diameters were also calculated. The lengths were measured using a metallic ruler graduated in millimeters. The intramuscular vasculature and anastomosis were recorded during dissection.

The long head was detached from its insertion and rotated with an upward curve preserving its nerve supply and the dominant vascular pedicles to determine whether or not this muscle could reach and wrap the anal canal.

Radiological study

The biceps muscle was dissected and removed. It was X-rayed to show the internal vasculature and anastomosis. In 10 of the studied adult cadavers, the external iliac artery was ligated and the common iliac artery was injected with the mixture of lead oxide and red latex. The long head of biceps brachii muscle was then dissected and isolated to be X-rayed. This was done to study the efficacy of the anastomosis between the inferior gluteal artery and the perforators of the profunda femoris artery.

Muscle rotation to wrap the anal canal

Each cadaver was put in the lithotomy position with abduction of both thighs. The long head of the biceps femoris muscle was then mobilized and its tendon was divided close to its insertion to the head of fibula. The muscle was then withdrawn and clockwisely rotated upwards with an upward concavity to wrap the anal canal in a gamma configuration and was sutured to the opposite ischial tuberosity.

Results

The arterial blood supply of the long head of biceps

The long head of biceps was supplied mainly by two sources: the inferior gluteal artery and the perforating branches of the profunda femoris artery (Fig. 1).

The inferior gluteal artery

In all the dissected cadavers, the inferior gluteal artery gave one constant major arterial pedicle to the upper part of the proximal third of the long head of the biceps muscle (Fig. 1). It had a diameter of 0.8 mm ± 0.02 (ranging 0.7 to 1.9 mm). The length of this pedicle was 4.2 mm ± 0.15 (ranging 3.6 to 4.9 mm).

In 90% of the studied cases, the pedicle entered the muscle at a distance of 4.5 cm ± 0.09 (ranging from 4.2 to 4.5 cm) from the ischial tuberosity, and at a distance of 38.3 cm ± 1.4 (ranging from 36 to 39.8 cm) from the level of the head of the fibula. In the remaining 10% of the cases, the inferior gluteal artery gave its arterial pedicle to the proximal portion of the muscle at a distance of 3 cm ± 0.4 (ranging from 2.8 to 3.5 cm).

The perforating branches of the profunda femoris artery (PFA)

In 27 of the studied cases (90%), the long head of the biceps femoris received 3 major arterial pedicles with an average diameter of 2.2 mm ± 0.2 (ranging from 1.8 to 2.6 mm) arising from the profunda femoris artery (Fig. 1). The first major arterial pedicle entered the anteromedial surface of the upper third of the muscle while the second and the third pedicles entered the middle third of the same surface of the muscle. Three perforating branches arose from the lateral aspect of the profunda femoris artery. The first branch arose in the femoral triangle above the adductor brevis muscle. It pierced the adductor magnus muscle then passes through the tendinous arches on the medial aspect of the femur to enter the posterior compartment of the thigh. The second and the third pierced the adductor magnus at the level of the part of the adductor canal. In all of the studied cases, the major arterial pedicles were distributed to the proximal and the upper half of the middle thirds of the biceps femoris muscles.

The first, second and third perforating branches gave the upper, middle and lower co-dominant arterial pedicles respectively. Their mean distances from the ischial tuberosity, diameters and lengths are shown in Table I.

In 3 studied specimens (10% of cases), only two perforating arteries passed through the adductor magnus and ramified in the posterior compartment of the thigh. They supplied the middle third of the long head of biceps while the inferior gluteal arterial pedicle passed to the upper third of the muscle.

The long head of the biceps muscle received also many small arterial branches from the musculocutaneous and septocutaneous arteries, the nearby muscles and 8 of the studied cases (26.7%) from one of the major pedicles. There was a small arterial pedicle between the lower third of the long head and the short head of biceps femoris muscle.

Venous drainage of the long head of biceps femoris muscle

Each major arterial pedicle was accompanied by two vena comintantes. Those accompanying the pedicle from the inferior gluteal artery drained into the inferior gluteal vein while those accompanying the pedicles of the perforators of the PFA drained into the profunda femoris vein (Fig. 2).

The extramuscular arterial anastomoses

There was an extensive arteriolar anastomosis on the external surface of the long head of biceps muscle and on the nearby fascia (Fig. 3). Such anastomoses were between branches from the major arterial pedicles to the muscle and also were between branches of these pedicles and the branches of the nearby arteries of the neighboring muscles. Moreover, there was a large anastomotic artery between the three major arterial pedicles of the perforating branches of the profunda femoris artery in all of the studied specimens (Fig. 2)

Nerve supply to the long head of biceps femoris muscle

The nerve supply to the long head of biceps femoris muscle arose from the sciatic nerve in all of the studied specimens. In 21 cases (70%) of the specimens, the nerve entered the proximal third of the long head with the upper major arterial pedicle of the first perforator of the profunda femoris artery or near it (Figs. 1). In 9 cases (9%), the nerve entered the middle third of the muscle.

In 21 of the studied cases (70%), the nerve was single and in 8 cases (27%), there was a single trunk that divided into two branches. One of these branches entered the proximal third while the other entered the middle third of the long head of the biceps femoris muscle.

In 1 case, the nerve gave one branch to the upper third and two branches to the middle third. In this case, the lowest branch reached the upper half of the middle third of the long head of the biceps muscle.

The nerve arose from the sciatic nerve at an average distance of 6 ± 1.1 cm (ranged from 5.5 to 7 cm) from the ischial tuberosity. Its length from the origin to its site of its entry at the muscle was at a mean of 14.4 ± 2 cm (ranged from 14 to 16.3 cm).

The calculated lengths

The length of the long head of the biceps muscle in the adult cadavers (measured from ischial tuberosity to the head of the fibula) was a mean of 42 ± 1.7 cm (ranged from 38 to 46 cm). The thigh length was at a mean of 43 ± 1.6 cm (ranged from 36 to 45 cm). The length of the muscle that was available for rotation around the anal canal was at a mean of 25±1 cm

Table 1 The mean diameters of the proximal, distal ends and the overall mean of the three major arterial pedicles of the perforating branches of the profunda femoris artery

Pedicles of the perforating branches of the PFA	Mean proximal diameter (mm)	Mean distal diameter (mm)	Mean overall diameter (mm)
Proximal	2mm± 1.1	1.8mm ± 0.8	1.9mm ± 0.9
Middle	1.6mm ± 1.1	1.4mm ± 0.4	1.5mm ± 0.6
Distal	2.6mm ± 1.8	2.4mm ± 0.93	2.5mm ± 1.3

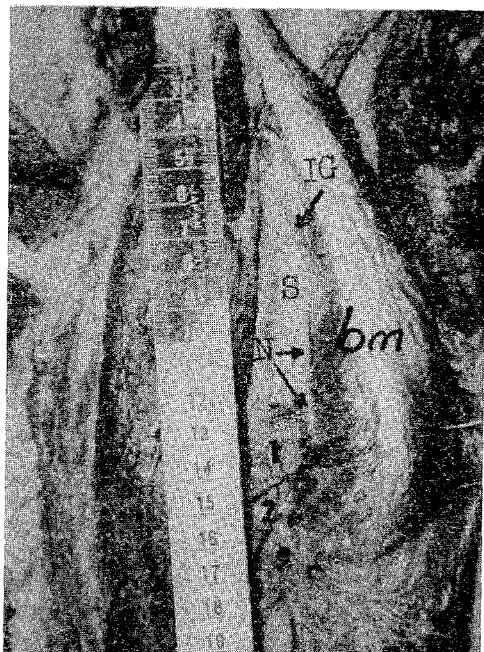

Fig. 1 *A photograph of the back of the upper part of the right thigh of an adult fresh cadaver that shows the three perforating branches of the profunda femoris artery (1, 2, 3). The perforators give branches (r) to supply the biceps femoris muscle (bm). The nerve (N) enters the middle third of the muscle with the aterial pedicle of the first perforator (1). The inferior gluteal artery gives an arterial pedicle (IG) to the upper third of the muscle. G, gluteus maximus muscle, S, sciatic nerve.*

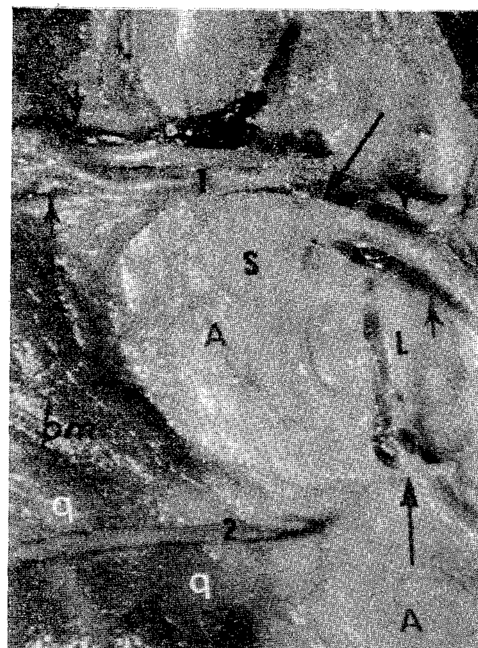

Fig. 2 *A photograph of the back of the right mid-thigh of an adult fresh cadaver. It shows a large arterial anastomotic channel (L) between the perforating branches of the profunda femoris artery (long arrows). It also shows the extensive anastomosis (A) between the branches (q) of the major arterial pedicles (1, 2) to biceps femoris muscle (bm). Short arrows indicate the two venae comitants surrounding the major arterial pedicles.*

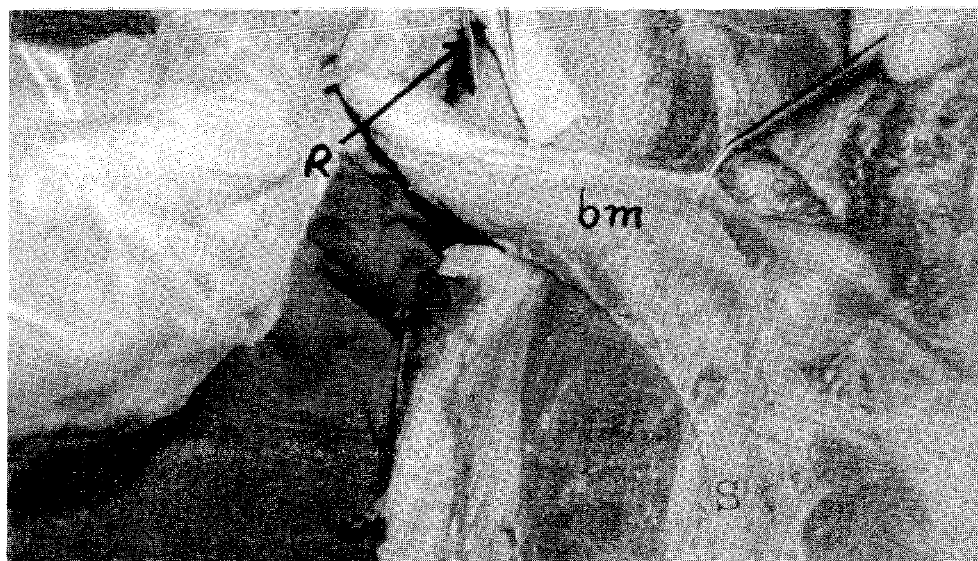

Fig. 3 *A photograph of the back of the right thigh of an adult fresh cadaver. The long head of biceps muscle (bm) is rotated in an upward direction to wrap the anal verge (R). I, ischial tuberosities, S, siatic nerve.*

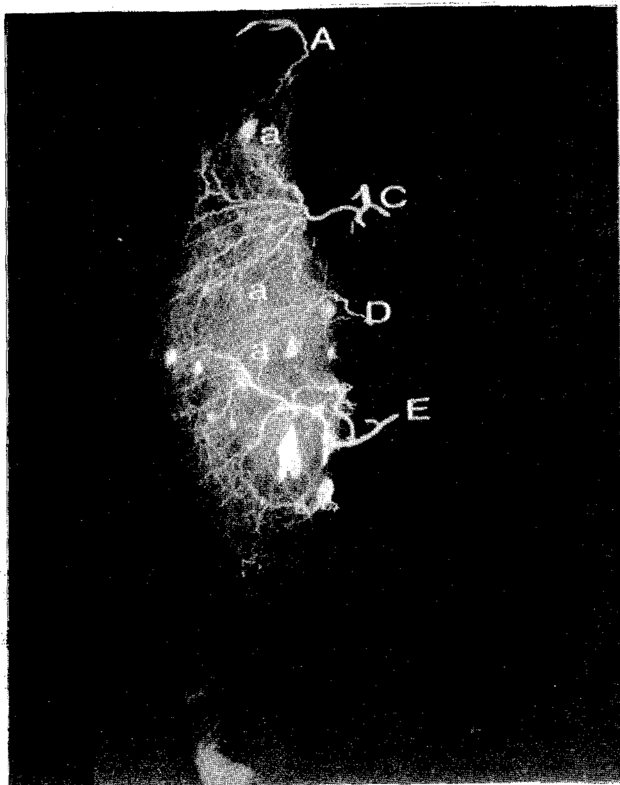

Fig. 4 *An arteriograph of the arterial pedicles of the long head of biceps femoris muscle following the common iliac artery. It shows an arterial pedicle from the inferior gluteal artery (A) and three arterial pedicles of the profunda femoris artery (C, D & E). It also demonstrates the fair intramuscular anastomoses (a) between the four pedicles.*

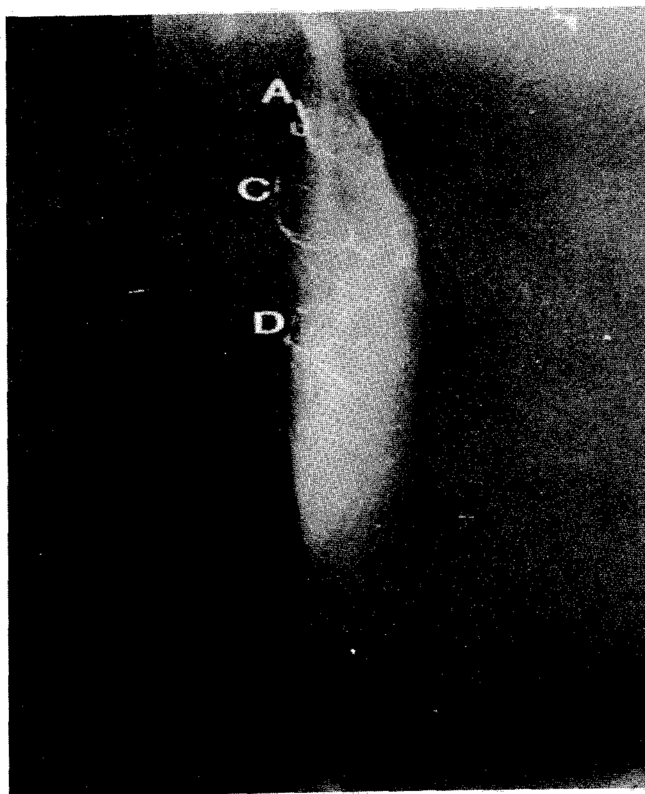

Fig. 5 *An arteriogram of the common iliac artery after occlusion of the external iliac artery to show filling of the arterial pedicles of the long head of biceps femoris muscle. It shows three arterial pedicles of the perforators of the profunda femoris artery (A, C, D). It also demonstrates the fair intramuscular anastomoses between the pedicles.*

(ranged from 20.4 to 27.7 cm).

The distance between the ischial tuberosities was at a mean of 23±1 cm (ranging from 20.4 to 27.7 cm). The distance measured from the last major arterial pedicle to the anal verge was at a mean of 13 ± 1.5 cm (ranged from 11.6 to 15 cm).

Wrapping of the long head

It was possible in all the cadavers to mobilize the long head of the biceps muscle and rotate it with an upward curvature to wrap around the anal canal and reach the opposite ischial tuberosity without stretching the main neurovascular pedicles (Fig. 3). It was necessary to sacrifice the minor blood vessels entering the lower third of the muscle in all cases of transposition. In 3 cases only (10%), it was necessary to divide the lower major pedicle leaving the upper two three arterial pedicles to facilitate the rotation of the muscle to wrap the anal canal. The nerve supply to the muscle did not suffer stretching during muscle transposition.

Radiological examination of the muscle

Radiological studies showed the perforating branches of the profunda femoral artery, which were three in number. Posteriorly they anastomosed with each other in longitudinal chains. Radiological studies also showed the presence of arterial loops connecting the perforating branches of the profunda femoris artery and branches of the femoral, the external iliac, internal iliac, popliteal and tibial arteries. These loops connected the previous vessels with the trochanteric and cruciate anastomosis.

Injection of the common iliac artery showed the three main vascular pedicles to the long head of biceps femoris muscle (one from the inferior gluteal artery and the other two from the perforating branches of the profunda femoris artery). It also showed the extensive intramuscular anastomosis between these pedicles (Fig. 4).

On the other hand, injection of the common iliac artery with red latex after occlusion of the external iliac artery showed that the dye filled the three main arterial pedicles arising from the perforators of the profunda femoris. It also showed the intramuscular branches of the pedicles with a fair number of intramuscular anastomoses (Fig. 5).

Tendino-muscular junction of the long head of biceps muscle

The length of the fleshy portion of the long head of biceps femoris muscle was at a mean of 28 ± 2.4 cm (ranging from 24 to 33 cm). The ratio of the length of the fleshy portion to the whole lengths of the muscle was about 67%. The tendinous portion of the muscle had 33% of the whole length of the muscle and about 49% of the fleshy part of the muscle.

The length of the rotated portion of the muscle in relation to the thigh length and the distance from the last major pedicle to the anal verge:

The calculated lengths of the rotated portions of the long head of biceps femoris muscles were at a mean of 25±3.1 cm (ranging from 22.4 to 27.5 cm). The thigh length was at a mean of 43± 1.3 cm (ranging from 36 to 45 cm). Thus, the length of the rotated portion was at a mean of 0.60 ± 0.005 of

the length of the thigh (range from 0.60 to 0.61).

The distance from the last major pedicle to the long head of biceps femoris muscle to the anal verge was at a mean of 13 cm ± 1.3 (ranging from 11.6 to 15 cm). On the other hand, the distance between the two ischial tuberosities was at a mean of 9 cm ± 1.2 (ranging from 7.4 to 10.8 cm). Thus, the length between the last major pedicle and the contralateral ischial tuberosity passing-by the anal verge was at a mean of 11.5 ± 1.3 cm (ranging from 9.5 to 12.9 cm). Consequently, the length of the muscle left to wrap the anal canal was at a mean of 7.5 cm.

Discussion

Graciloplasty is the most famous surgical intervention for neoanal sphincter reconstruction. Results of gracilis transposition for anal incontinence have been conflicting Pickrell et al.[1]. The success of the muscle flaps in reconstructive surgery is based on reliable blood supply. The knowledge of the locations of the vascular pedicles to muscle would help the surgeon to rotate it safely as a flap. Consequently, the pattern of blood supply to each muscle determines the amount of safe transposition and its usefulness for coverage in reconstructive surgery[13-15].

In the present study, there were four dominant arterial pedicles supplying the long head of biceps muscle in addition to several minor arterial branches in 90% of the studied cases. The four dominant arterial pedicles were, one pedicle from the inferior gluteal artery and three pedicles from the upper three perforators of the profunda femoris artery. In 10% of the cases, there were three dominant arterial pedicles supplying the long head of biceps muscle in addition to several minor arterial branches. In all cases, the inferior gluteal artery gave one arterial pedicle to the proximal third of the muscle. According to Mathes and Nahai classification[16], the biceps muscle was classified to be of the type II. However, the current study showed that the long head received multiple dominant arterial pedicles beside several minor arterial branches. Consequently, the long head of biceps femoris cannot be considered to be of type II. This is in agreement with the results obtained by Shanahan et al,[15].

The radiological study of the vasculature of the long head of biceps femoris muscle during the current work showed the presence of anastomosing arterial loops between the internal iliac, external iliac, femoral and profunda femoris arteries. It also showed the presence of extensive intramuscular anastomosis between the intramuscular branches of the major arterial pedicles inside the long head of biceps muscle. Consequently, the vascularity of the long head of biceps muscle may not be jeopardized if one or two of the arterial pedicles are sacrificed during the transposition of the muscle to wrap the anal canal. On the other hand, gracilis muscle is supplied segmentally[6] with several arterial pedicles. Division of any of these pedicles can affect the vascularity of the part of the muscle supplied by it leading to its necrosis and subsequent infection of that part. This can explain the recorded infection in the majority of the failed or complicated graciloplasty.

Injection of the lead oxide mixed in red latex through the common iliac artery after occlusion of the external iliac artery showed that, the dye passed to the major arterial pedicles arising from the upper three perforators of the profunda femoris artery. This means that the latex by-passed the occluded segment of the external iliac artery indicating that the inferior gluteal arterial pedicle is capable for maintaining sufficient arterial supply to the muscle if one or two of the perforators of the profunda femoris artery have been occluded. It also showed that at least one major pedicle from the perforators of the profunda femoris artery should be left during transposition of the long head of biceps femoris.

Recent researches[15-20] showed that the function of the gracilis flap could be improved by ensuring total wrapping of the neoanus with the muscular part of the gracilis, but this can only be achieved by dividing the main blood vessels, which are considered essential for blood supply to the segmentally supplied flap. The researchers advised a vascular delay technique to preserve the flap without these vessels, which they performed first experimentally, then clinically, with promising results. They concluded that dissection of the main vessels of the gracilis muscle with vascular delay and long-term electrical stimulation may optimize the gracilis flap in patients requiring dynamic graciloplasty. Consequent to the current study, even sacrificing the main arterial pedicles of the perforators to the long head will not seriously affect the vascularity of the flap since the blood can pass through the inferior gluteal arterial pedicle and the intramuscular anastomosis to the devascularized segment of the muscle. In this respect, the long head of biceps muscle, as a new anal sphincter, could be superior to gracilis muscle.

During the current study, the dissection study of the blood supply of the muscle showed the presence of extensive extramuscular anastomosis between the major arterial pedicles of the long head of the biceps femoris muscle. Such anastomosis had been seen by the naked eye running on the external surface of the muscle and could be, at least partially, responsible for by-pass of the injected latex to the occluded segment of the external iliac artery in the present study.

Previous researches[17-19] proved that the vascularity of the gracilis muscle after transposition and electrical stimulation was increased. They attributed such an increase to opening of the anastomosing intra- and extramuscular vessels. Consequently, it would be expected that transposition of the long head of biceps femoris muscle would result in opening of the anastomosing loops and the intramuscular anastomosis. Thus, the vascularity of the transposed head would not be jeopardized if it was transposed with sacrificing one or more of the lower major pedicles.

The presence of extensive intramuscular anastomosis inside the long head of biceps muscle as shown in the current study might signify that the muscle is not supplied segmentally. Thus, the arterial supply of the muscle could not be classified as type IV according to the standard classification of the blood supply of the muscles described by Mathes and Nahai[16]. Consequently, biceps muscle does not follow the criteria of any of the four types in the Mathes and Nahai classification of muscles.

Clinical experience with the electrically stimulated gracilis flap as an anal sphincter has demonstrated that, ligation of the minor distal vessels increases the viability and muscle

function for transposition and electrical stimulated graciloplasty[20,21]. Ligation of the distal arterial pedicles of the long head of biceps femoris prior to its transposition is expected to reduce the blood flow to the muscle. However, such ligation would open the extra-and intramuscular extensive anastomosis as experienced in electrically stimulated graciloplasty. Consequently, the possibility of necrosis of the electrically stimulated transposed portion of the muscle is expected to be less compared to the results obtained by transposition of the gracilis muscle. Consequently, the surgeon can sacrifice one or two pedicles in order to reach the adequate length of the muscle to wrap the anal canal without being worried about the blood supply of the transposed portion.

Dynamic graciloplasty is the most famous surgical intervention for the neoanal sphincter reconstruction. Failure of this graciloplasty has been attributed to deficient blood supply after transposition. This leads to necrosis and postoperative infection of the transposed gracilis[1, 8, 20, 22-24]. In this respect, the long head of biceps might be a suitable alternative for electrically stimulated neoanal sphincter reconstruction.

During the present study, it was found that the muscle got a single nerve supply in 97% of the cadavers dissected. In only 3% of the cases, two separate nerves supplied the muscle. Accordingly, the nerve to the long head of biceps femoris can be stimulated selectively in 97% of cases and the remaining 3% would require stimulation of the terminal branches of their innervating nerve or intramuscular stimulation when used for neoanal sphincter.

The present study showed the presence of extensive extra and intramuscular anastomosis between branches of the major arterial pedicles to the biceps muscle in addition to the arterial loops that connect the major arteries of the thigh. These anastomoses are expected to open if minor vessels of the muscle are occluded similar to that of the transposed gracilis[20, 21, 24].

Our study showed that the length of the thigh was at a mean of 43 cm. Thus the muscle length available for rotation is about 67% of the length of the thigh. Consequently, surgeons can calculate the possible length of the transposed part of the muscle before the operation by measuring the length of the thigh. They also can give precise judgments for the suitability of the use of the long head of biceps femoris in patients to be operated upon.

The distance between the last major pedicle and the anal verge was ranging from at a mean of 13.5 cm. If this distance is added to the mean distance between the anal verge and the opposite ischial tuberosity, it will be 18 cm. This means that there will be an average of 6.5 cm left from the transposed portion of the muscle that are suitable to wrap the anal canal without significant stretch of the lower major pedicle. Therefore, transposition of the long head of biceps muscle appeared to be convenient since the blood supply to the muscle would not be severely affected and consequently, postoperative necrosis and infection might be remote. Thus, the long head of biceps femoris muscle could be superior in this respect to the transposed gracilis muscle.

In the current study, it was possible in 90% of the studied cases to mobilize the long head of biceps to wrap the anal canal without stretching the main vascular pedicles or its nerve supply. However, in 10% of the cases it was possible to rotate and transpose the muscle after sacrificing the lowest pedicle, thus preserving the nerve with two main arterial pedicles that supply the upper third of the muscle. This may not affect the vascularity of the muscle because of the presence of intramuscular and extramuscular anastomosis between the pedicles. Therefore, the blood from the existing pedicles is expected to by-pass the divided one. Such by-pass was confirmed in the radiological studies done in the present work since the injected dye was shown to visualize all the three major pedicles after occlusion of the external iliac artery. Consequently, division of one or two major pedicles that arise from the perforators of the profunda femoris artery during muscle transposition would not affect the vascularity of the transposed portion. Thus, postoperative complication especially necrosis and infection of the transposed muscle will be minimized.

It can be concluded that, the long head of biceps femoris can be safely rotated to wrap around the anal canal without adverse effects on its vascularity and nerve supply. Moreover, it is also suitable for electrically stimulated neoanal sphincter. The available length of the muscle for rotation in any person is about 57% of the length of his thigh.

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Gallstones in Ghanaian children with sickle cell disease

*R. Darko, O. P. Rodrigues[1], J. O. Oliver-Commey[1] and C. N. Kotei**,
*Department of Surgery, [1]Department of Child Health and
Korle Bu Teaching Hospital, Accra, Ghana.

Summary

Objective: **This prospective, cross-sectional study was done to define the prevalence and age of onset of gallstones in Ghanaina children with Sickle Cell Disease (SCD) in steady state, using ultrasonography.**

Materials and method: **The study was conducted at the Paediatric SCD clinic, Korle Bu Teaching Hospital, Accra, Ghana.**

Three hundred and fifteen (315) children comprising 162 males and 153 females aged 2 to 13 years with a confirmed diagnosis of SCD of haemoglobin SS, (HbSS), Haemoglobin SC, (HbSC) or Haemoglobin S-βthalassemia (SβThal) genotype whose parents/guardians gave informed conset, were recruited consecutively. The main outcome measure was the detection of gallstones in the gall bladder or common bile duct by ultrasonography.

Results: **Thirteen children, 12 males and 1 female had gallstone, giving an overall prevalence of 4%. The youngest was aged 6. Four children had sludge only. Peak age of prevalence was 12 years. All patients under 12 years with gallstone were males (92.3%). The very high male: female ratio in these sickle cell disease children is at variance with the normal male: female ratio of 1: 4.6.**

Although twenty percent of all the patients were genotype SC, only one SC patient had gallstones, giving a prevalence rate of 0.3%, and a prevalence ratio of stone in SS: SC of 12:1.

Twenty patients had no spleen detectable clinically or on ultrasoound examination and none of them had gallstones.

Conclusion: **Gallstones occur at an early age in children with sickle cell disease in Ghana.**

Key-words: ***Sickle cell disease, Gallstones, Ghanaian children, Ultrasonography.***

Résumé

Objectif: Cette étude en prospective et en coupe-transversale était effectuée afin de déterminer la prévalence et l'âge et la première attaque du calcul biliaire chez des enfants ghanaians atteints de la drépanocytose dans un état régulier à travers l'utilisation d'échographie.

Matériels et méthode: Cette étude a été effectuée au centre médical pédiatrique de la drépanocytose, centre hospitalier universitaire du Korle Bu, Accra, Ghana.

Trois cents quinze (315) enfants y compris 162 du sexe masculin et 153 du sexe féminin âgés de 2 à 13 ans avec un diagnostic confirmé d'hémoglobine SS, (HbSS) de la drépanocytose, Hémoglobine SC, (HbSC) ou Hémoglobine S - Bthalassemie (SBThal) génotype dont les parants/gardiens ont donné du consentement, ont été recrutés l'un après l'autre. Le résultat principal était la détection du calcul biliaire dans la résicule ou bien canal biliaire ordinaire à travers l'échographie.

Résultats: Treize enfants, 12 du sexe masculin et 1 du sexe féminin étaient atteints du calcul biliaire ce qui donne une prévalence du rendement globale de 4%. Le plus jeune était âgé de 6 ans. Quatre enfants avaient eu la fange seulement. L'âge maximum de la prévalence était 12 ans. Tous les patients moins de 12 ans avec calcul biliaire était du sexe masculin soit 92,3%. Le taux élevé d'une proportion sexe masculin et sexe féminin chez ces enfants atteints de la drépanocytose est incompatible avec une proportion normale du sexe masculin: féminin 1: 4,6. Bien que vingt pourcent de tous les patients soient du génotype SC, un patient SC seulement avait eu le calcul biliaire, ce qui donne un taux de la prévalence de 0,3% et un rapport de la prévalence de caullou dans SS: SC de 12: 1

Vingt patients n'avaient aucune rate détectée cliniquement ou à travers l'ultrason et aucun d'entre eux n'avait le calcul biliaire.

Conclusion: Calcul biliaire arrive tout jeune chez des enfants atteints de la drépanocytose au Ghana.

Introduction

Sickle cell disease is a major health problem in Ghana with 16% and 10% carrier rates for the haemoglobin S (HbS) gene and the haemoglobin C (HbC) gene respectively. Of every one million children born in Ghana, more than 20,000 of this number will suffer from sickle cell disease.[1]

Abdominal pain due to vaso-occlusion in the mesenteric circulation is common among SCD patients[2] but it may also be due to other causes including gallstone disease.[3] Distinguishing between abdominal criris and other causes of acute abdominal pain of which cholecystitis is one can be difficult. Gall stone disease is more common in sickle cell disease children than in the general population.[4] The stones arise as a result of haemolysis, which leads to the formation and deposition of breakdown pigments as pigment stones.[5] In Accra, Ghana, while the incidence of gallstone disease among adults in Accra with sickle cell disease was reported at 14.67% in 1975,[4] that of sickle cell disease children is largely unknown. Ultrasonographic examination is a safe, effective and non-invasive method of diagnosis of gall bladder diseases.[6, 7]

The aim

The aim of the study was to define the age of first detection and the relative prevalence of gallstones in sickle cell disease children in a steady state attending the Paediatric Sickle Cell Disease clinic at the Korle Bu Teaching Hospital using ultrasonography.

Materials and methods

The Paediatric Department Sickle Cell Disease Clinic at the Korle Bu Teaching Hospital caters for all children, predominantly from southern Ghana, up to age 13 years who

* *Correspondence* **Deceased

have sickle cell disease. Three thousand patients attend annually of which 400 are new cases. Children with Sickle Cell Disease are otherwise seen in the general out patients' clinic.

Study design

The study was limited to children between 2 and 13 years with confirmed diagnosis of Sickle cell haemoglobinopathy by haemoglobin eletrophoresis. This included patients who were SS, SC or SSF and SBTHal.

Table 1 Prevalence of gall stones in sickle cell disease patients

Age (Yrs)	Number	% with stones	Male: Female
2 - 4	41	0%	
5 - 9	149	4%	6:0
10 - 13	125	5.8%	6:1

All patients between 2 years and 13 years who attended the clinic during the three months study period who were in a steady state and whose parents/guardians gave informed consent were recruited for the study. The children were selected consecutively. Those under 2 years were not recruited due to the logistic difficulty of ensuring the overnight fast and doing ultrasonography on them. The children were examined by Dr. Rodrigues and Prof. Oliver-Commey and information recorded on a structured questionnaire included name, age, sex, genotype, height, weight, liver and spleen sizes, and details of previous crises including bone pain, severe anaemia, severe abdominal pain and the number of transfusions received. They were then instructed to return for abdominal ultrasonography one week later and after an overnight fast. A haemoglobin test was done during the week before the ultrasonography.

The abdominal ultrasonography was performed ny Dr. Kotei using a Picker echo view model 80-L with a 3.5 MHz transducer. Examinations were performed in the supine and lateral-decubitus positions and involved the spleen, the liver, gall bladder and bile duct system, pancreas, and the kidneys.

Result

In all 315 patients were entered into the study. There were 162 males and 153 females. There were 13 patients with gall stones, 12 (92.3%) of whom were males. In addition, 4 patients had only sludge. Biliary sludge is a mixture of bile and particulate matter, which consists of a variety of precipitates such as cholesterol monohydrate, calcium bilirubinate, and other calcium salts.[8] It presents as an echogenic material within the gall bladder lumen that layeres and changes shape and position on moving the patient. All the patients with gallstones under the age of 12 years were males (92.3%). The only female patient with gallstone was aged 12 years. The prevalence of gallstone disease in the 2 - 13 years age-group was 7.4% in the male and 0.68% in the female (mean 4%). The prevalence by age is as shown in Table 1.

Though we examined children from age of two years the earliest age of detection of gall stone by ultrasonography was 6 years. The genotype SC patients formed 20% of all the patients but the prevalence of stones in the SC patient was 0.3% giving the prevalence ratio of stone in the SS: SC to be 12:1. This shows that the incidence of gallstones in the SC patient is much lower than the incidence of gallstones in the SS patient under the age of 14 years.

Associated abnormalities

There was no spleen in 20 patients and none of these had gallstone detected on ultrasonography.
None of these patients with or without gallstone was found to have a dilated common bile duct.

There was no significant difference between those who had stones and those who did not have stones in the frequency of bone pain and abdominal crisis.

Eighty three percent of patients with gallstone had one or more blood transfusions as opposed to 47% of those without gallstones.

Discussion

Gall stone disease has been shown to occur with increasing frequency in Ghanaian adults.[9]

It is however uncommon to see gallstones in children who do not have haemolytic disease or who have not had *Salmonella* cholecystitis.[10] Other predisposing factors in children are total parenteral nutrition,[11] ileal disease[12] and prolonged fasting.[13] In Korle Bu Teaching Hospital, in 1990 - 91 out of 98 cholecystectomies performed 8 (8%) were sickle cell disease patients and all were adults.[9]

The natural history of gallstone disease in sickle cell disease patients is not well defined. None of these patients studied so far has had cholecystectomy and we shall be guided by their symptoms and signs as to whether and when they should have cholecystectomy.

The very high male: female ratio (12:1) is at variance with the normal sex ratio in adults which is 1:4.6 in Ghanaians.[9] In Jamaica the male: female ratio is 2.5:1 in children aged 5 - 7 year and 1.3:1 in the 11 - 13 year old.[14] The higher prevalence in males may be due to a higher frequency of haemolytic crisis in males[15] as Omonge et al showed the association between reticulocyte count (an index of haemolysis producing hyperbilirubinaemia) and gallstone.[16]

Prospective studies restricted to children have shown that the prevalence of gall stones is from 6 to 29% and increases with age.[9]

The prevalence of gallstones in this group of sickle cell disease patients in Ghana was 4%. A similar study in Nigeria in 1979 by oral cholecystogram involving 77 patients aged 8 - 31 years showed a prevalence of 9%.[17] Later studies using ultrasonography reported similar findings to ours; 4.4% in children under 17 years[18] and 5% for those under 15 years.[19] In Saudi Arabia, the prevalence was 27.5% in 29HbSS patients under 15 years.[20] Sarnaik et al in 1976 - 79 described the rather high incidence of gallstones in sickle cell disease patients in Detroit USA shown by ultrasound.[21]

The reason for the rather high prevalence of gallstones in sickle cell disease patients in the USA is not clear but may

be tied with the general higher incidence of gallstones in their general population.[22] Another reason may be the selection of symptomatic patients in the USA study at the time of examination as symptomatic patients are more likely to have stones that had triggered the symptoms. These reasons may also account for the prevalence of 13% in Jamaican patients of 5 - 13 years and in Kuwait (15.6% in 1 - 16 year olds).[23] We decided to study patients who were asymptomatic as we felt this would give a more realistic idea of the prevalence of this condition in a population of children with sickle cell disease. The cholesterol level of stones in sickle cell disease patients is less than 10% as shown by Darko et al.[24] Since the cholesterol level is that low, gallstone in sickle cell disease patients are not suitable for dissolution and are best managed by cholecystectomy when indicated.

Sludge in sickle cell disease patients

There were only 4 patients with sludge. There is no consensus in the management of biliary sludge especially in sickle cell disease patients. While some believe that sludge is silent and does not convert to stone with time,[25] others believe that sludge is a precursor of stone.[26] Walker and Serjeant followed 17 symptoms free patients with sludge for 5 years and 12 out of the 17 developed stones by the following year but remained symptom free.[27,28]

Stones in the common bile duct in sickle cell disease patients

None of our patients was found to have stones in the common bile duct by clinical, laboratory and ultrasonic examination. However, in Quatif, Saudi Arabia, cholecystectomy was performed in 39 children with sickle cell disease. Out of these, 18 (46%) were found to have associated common bild duct stones.[29]

Conclusion

Since gallstone disease is not often considered as a cause of acute abdominal pain in children, the diagnosis is often delayed. Gallstone disease occurs rather early in sickle cell disease patients and therefore should be considered in the differential diagnosis of acute abdominal pain in children with sickle cell disease. From our study the sickle cell disease male patient is more likely to form a stone rather than the female patient. None of the patients with asplenia had gallstones. The natural history of gallstone in the sickle cell disease patients needs to be studied.

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Bronchiolitis in Abha, Southwest Saudi Arabia: Viral etiology and predictors for hospital admission

*Mohammed A. Al-Shehri, Ali Sadeq[1] and Kazim Quli[2]
*Departments of Pediatrics, [1]College of Applied Health Science, [2]Microbiology,
*& [2]College of Medicine, King Khalid University,
P. O. Box 641, Abha, Kingdom of Saudi Arabia.
E-mail: fariss2000@yahoo.com

Summary

Background: **Bronchiolitis is the most common lower respiratory tract infection in children less than 24 months of age and the most frequent cause of hospitalization in infants under 6 months of age.**

Objectives: **To determine the viral etiology and predictors for hospital admission of children with bronchiolitis in Abha city, southwest Saudi Arabia.**

Methods and materials: **Children five years old or younger diagnosed with bronchiolitis were enrolled in the study as a study-group of admitted cases (n=51) and a control-group of non-admitted cases (n=115). Clinical features and risk factors of bronchiolitis were recorded at the time of presentation and the clinical course was monitored during the hospital stay. Nasopharyngeal aspirates (NPA) for respiratory virus isolation were obtained from each of the admitted cases at the time of hospital admission.**

Results: **Prematurity, chronic lung diseases, atopic dermatitis, pure formula feeding, passive smoking and age = one year were significant predictors of admission. Respiratory syncytial virus (RSV) was isolated in 40 % of the admitted cases. Eighty percent of brochiolitis due to RSV were in children less than six months of age. Adenovirus was isolated in 22% of cases. Other viruses isolated were: Influenza virus A (11%), influenza virus B (7%), Parainfluenza viruses (18%), parainfluenza virus type 1 (4%), parainfluenza virus type 2 (2%) and parainfluenza virus type 3 (13 %).**

Conclusions: **Respiratory syncytial virus was the most frequent cause of admitted-cases of bronchiolitis, followed by adenovirus, parainfluenza virus and influenza virus, respectively. Prematurity, history of atopy, chronic lung disease, passive smoking, age = one year and lack of pure breast-feeding were significant predictors for admission of bronchiolitis cases.**

Key-words: ***Bronchiolitis, Respiratory syncytial virus, Hospitalization, Breast feeding.***

Résumé

Introduction: Bronchiolite est une infection de l'appareil respiratoire inférieur le plus ordinaire chez des enfants âgés de moins de 12 mois et la cause la plus fréquente d'hospitalisation des enfants âgés de moins de 6 mois.

Objectifs: Déterminer l'étiologie virale et les causes d'admission dans l'hôpital des enfants atteints de la bronchiolite dans la ville d'Abha au sud ouest d'Arabie saoudite.

Méthode et matériels: Des enfants âgés de cinq ans ou moins dignostiqués atteints de la bronchialite ont été inscrits pour cette étude comme groupe d'étude des cas admis (n = 51) et un groupe témoin de cas non-admis (n = 115). Des traits cliniques et facteurs de risques de la bronchilite ont été notés pendant la présentation et on avait également surveillé le traitement clinique au cours du séjour dans l'hôpital filtre à vide de Nasopharyngite (NPA) pour l'isolement du virus respiratoire a été obtenu de chaque cas admis pendant l'admission dans l'hôpital.

Résultat: Prématurité, maladie chronique du poumon dermatite atopique, lait en poudre pur, tabagisme passif, et âge <- un an étaient des conditions importantes d'admission virus respiratoire syncytial (VRS) était isolé en 40% des cas admis quatre vingt pourcent de brochiolite attribuable au VSR étaient chez des enfants âgés de moins de six mois Adenovivus était isolé en 22% des cas. D'autres virus isolés étaient: virus de la grippe B (7%), virus parainfluenza (18%), virus parainfluenza type 1 (4%), virus parainfluenza type 2 (2%) et virus parainfluenza type 3 (13%).

Conclusion: Virus respiratoire syncytial et la cause la plus fréquente des cas admis de la bronchiolite suivi par virusadeno, virus parainfluenza et virus influenza respectivement prématurité, histoire d'atopie. La maladie chronique du poumon, tabagisme passif, âge ≤ un an et manque d'allaitement maternel pur étaient des prédicateurs pour l'admission de cas de bronchiolite.

Introduction

Bronchiolitis is primarily a clinical diagnosis. Typically, infants present with cough, breathing difficulty associated with coryza, tachypnoea and wheezing.[1-2] Less commonly, young infants, especially those born prematurely, may present with apnoea before developing the characteristic cough, tachypnoea and the use of the accessory muscles of respiration.[2, 3]

Bronchiolitis is the most common lower respiratory tract infection in children less than 24 months of age and the most frequent cause of hospitalization in infants under 6 months of age.[4,5] It is caused by viral infection of the lower respiratory tract, principally by respiratory syncytial virus (RSV), which gives rise to a widespread small-airway narrowing due to airway oedema, resulting in air trapping.[4-6] It is a self-limiting condition, but may be life-threatening, causing significant morbidity in small infants and patients with chronic diseases and often leads to long-term respiratory symptoms.[7] Many outbreaks of viral respiratory tract illness associated with increased rates of hospitalization and death have been reported in the literature.[8-10]

An understanding of the conditions which control the evolution of acute viral bronchiolitis can help in predicting the resources that should be made available for adequate

* Correspondence

treatment. Recently, several strategies for prophylaxis and treatment of RSV infections have been developed.[11,12] Passive immunization using RSV immunoglobulin and monoclonal antibodies for prevention of RSV diseases in premature infants, have provided effective forms of prophylactic intervention for high-risk groups.[11,12]

RSV activity in the United States is monitored by the National Respiratory and Enteric Virus Surveillance System, a voluntary laboratory-based system started in 1990. Currently, there is no similar epidemiological system operating in the developing countries.[13] Although several studies on bronchiolitis have been reported from the developed countries, [9,14,15] literature search revealed no reports on bronchiolitis in Saudi Arabia. This study is aimed at determining the significant predictors for hospitalization of children with bronchiolitis and the viral etiology of admitted cases in southwestern Saudi Arabia.

Materials and methods

Study setting

Abha, capital city of Assir province in south-western Saudi Arabia (population 1 200 000, elevation: 3133 metres above sea level). Agriculture is the main occupation in the Abha region because of the abundance of water. Industrial activity in the region includes: construction materials and timber processing, maintenance workshops and other secondary industries. As an urban population, people enjoy many modern facilities but retain the basic dietary and social habits of rural communities. Health services are provided primarily by primary health care centers.

This study was carried out at Assir Central Hospital - Abha (ACH), pediatric emergency room and pediatric ward from October 1997 to September 2001.

Study population

Children five-years old or younger were enrolled in this study. Each child was considered eligible if he or she met the age criterion, had symptoms and signs of respiratory tract infection and was diagnosed clinically as having bronchiolitis and if informed consent was obtained from parents or legal guardians for study participation.

Study design

This was a case-control study. A random sample of children suffering from bronchiolitis who were admitted into the pediatric ward at ACH, from September 1997 to October 2001 (n=51), made up the study group. One hundred and fifteen children who were diagnosed clinically as having bronchiolitis in the emergency room but did not need admission at the time of diagnosis were selected as the control group. Both groups were age and sex matched.

Methods:

I. Clinical features, including bronchiolitis clinical score[17], were recorded at the time of presentation. Oxygen-saturation was measured by pulse oximetry (Biox 3740, Ohmeda, USA). Subsequently, the clinical course was monitored during the hospital-stay including: the paediatric intensive care unit admission, the need for mechanical ventilation, associated complications, duration of hospital-stay and mortality. Bronchiolitis clinical score was calculated for each child based on the following; i) accessory muscle findings: no retraction (0 point), intercostals retraction (1 point), intercostals & suprasternal retractions (2 points) and nasal flaring (3 points). ii) Wheeze findings: no wheeze and well (0 point), end-expiratory wheeze (1 point), pan-expiratory ± inspiratory wheeze (2 points) and wheeze audible without stethoscope (3 points).

II. Information was obtained from parents on: whether the child was ever breastfed, the age at which infant formula was first given, and the age at which breast-milk was last known to be given. Children were classified into one of the following categories: never breastfed, breastfed but also formula-fed before the sixth month of age (mixed, early formula), breast-fed but also formula fed after the age of six-month (mixed, late formula) or exclusively breastfed (never formula-fed).

III. Nasopharyngeal aspirate (NPA) was obtained from each hospitalized child at the time of hospital admission for respiratory virus diagnosis.[18] Clinical specimens – (NPAs) were collected by vacuum suction through a plastic catheter with a specimen trap. Approximately 3 ml of transport medium (phosphate-buffered saline solution with 0.5% gelatin) was suctioned through the catheter into the trapped-specimen and transported within 1 to 2 hours on wet ice to the laboratory. NPAs were placed in tubes with 2 ml of the same transport-medium. For virology study, all the clinical specimens were analyzed for verification of the presence of respiratory viruses at the Virology laboratory of the Department of Microbiology, College of Medicine, Abha, Saudi Arabia. Enzyme-linked immunoabsorbant assay (ELISA) and indirect immunofluorescence assay (IFA) - for antigen detection of influenza viruses A and B, parainfluenza viruses 1, 2 and 3, RSV and Adenoviruses, using the monoclonal antibodies from the Respiratory Viruses Panel I Viral Screening & Identification Kit (Chemicon International Inc.[R], Temecula, California), were performed.

Statistical analysis

The comparison of proportions was performed with the Chi-square test for categorical variables and the Wilcoxon rank sum test for continuous variables. The Mann-Whitney test was used for the comparison of the averages. Analyses were performed with the Epi Info Software program, Version 6.03.

Odds ratios (OR) and 95% confidence intervals (CI) were calculated. To estimate which risk factors were independently related to hospital admission, the risk factors were included in multivariate forward stepwise logistic regression analysis. Odd ratios and 95% CI were also calculated for significant risk factors in this model.

Results

Table 1 shows the socio-biological characteristics of the

Table 1 Socio-biological characteristics of infants with bronchiolitis (Control and study group)

Characteristics	Control group N = 115	Study group N = 51	p value
Male: Female ratio	65:50	27:24	0.09
Age (months)	8.8 ± 3.9	7.6 ± 3.5	0.12
More than one sibling	79 (69%)	38 (74%)	0.68
Low monthly income	30 (26%)	13 (25%)	0.57

Table 2 Clinical characteristics of infants with bronchiolitis (Control and study groups)

Characteristics	Control group N = 115	Study group N = 51	p value
Weight (Kg)	11.9 ± 6.8	12.6 ± 5.5	0.34
Pure breast feeding	43(37%)	4 (7%)	0.01
Passive smoking	15 (13%)	19 (37%)	0.01
Child atopy	12 (10%)	18 (35%)	0.02
Infants ≤ one year	57 (49.5%)	33 (65%)	0.01
Oxygen saturation (%)	90.0 ± 1.24	86.4 ± 4.7	0.001
Bronchiolitis clinical score	2.2 ± 0.80	4.5 ± 1.5	0.01

Table 3 Predictors of hospitalization for infants with bronchiolitis

Predictors	Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI)
Prematurity	4.97 (3.81 - 5.16)*	3.44 (2.27 - 4.33)*
Congenital heart defects	1.21 (1.10 - 2.32)*	1.11 (0.85 - 1.95)
Chronic lung diseases	4.53 (2.42 - 5.46)*	3.12 (2. 19 - 3. 78)*
Atopic child	5.14 (4. 96 - 6.89)*	4. 75 (3.98 - 5.16)*
Atopic father	1. 35 (1.01 - 2.19)*	0.84 (0.65 - 1.23)
Atopic mother	1.74 (1.03 - 2. 69)*	0.97 (0.84 - 1. 72)
Atopic parents	2.28 (2.07 - 3.62)*	1.02 (0.96 - 1.81)
Breast feeding		
Exclusive breast milk	0.75 (0.46 - 1.24)	0.43 (0.22 - 1.13)
Mixed breast and formula milk	6.45 (4.31 - 8.33)*	4. 15(3.68 - 5. 24)*
Never breast milk	8.05 (6.37 - 5.14)*	2.51(2.11 - 3.73)*
History of exposure to smoking	4.18 (3.47 - 5.14)*	2.51(2.11 - 3.73)*
Age (one year or less)	9.52 (7.86 - 10.74)*	3.44 (2.27 - 4.33)*

* *Statistical significance at 0.05 level*

Table 4 Types of viruses, age and sex distribution of infants admitted with bronchiolitis

Type of virus*	< 6mon.	6 - 12 months	12 - 24 months	Total no (%)
RSV	15 (75%)	2(25%)	1 (6%)	18 (40%)
Influenza virus A	0	1(13%)	4(23%)	5(11%)
Influenza virus B	1(5%)	0	2 (12%)	3 (7%)
Adenovirus	4 (20%)	2 (25%)	4 (24%)	10 (22%)
Parainfluenza virus 1	0	0	2 (12%)	2 (4%)
Parainfluenza virus 2	0	0	1 (6%)	1(2%)
Parainfluenza virus 3	0	3 (37%)	3 (50%)	6 (14%)
Total	20(100%)	8(100%)	17(100%)	45(100%)

* *Respiratory viruses were isolated in 45 cases*

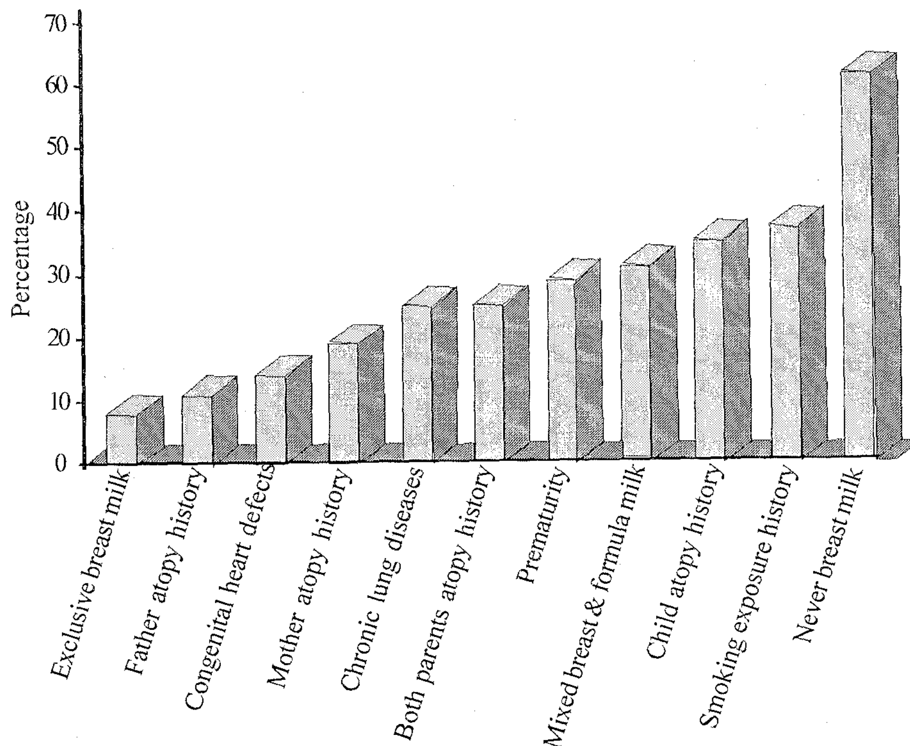

Fig. 1 ***Predictor factors of hospitalization in children with bronchiolitis***

study and control groups of children with bronchiolitis. There was no significant sex difference between the two groups (p=0.07). With regards to age, there was no significant difference between the mean age of both groups (p=0.57). However, infants less than one-year old constituted a significantly higher proportion of the study group(65%) than that of the control group (49.5%) (p=0.01). Both groups were comparable regarding the number of siblings (p=0.68) and family's monthly-income (p=0.57).

Table 2 shows the clinical characteristics of the study and control groups. The study group had significantly lower proportion of purely breast-fed infants (p=0.01), and higher proportion of passive smoking (p=0.01), and the history of child's atopy (p=0.02). The mean bronchiolitis score was significantly higher for the study group than that for the control group (p=0.01), while the mean oxygen saturation was significantly lower (p = 0.01).

Figure 1 shows the frequency of different predictors of hospitalization in children with bronchiolitis.

Applying logistic regression analysis to hospitalization with bronchiolitis as a dependent variable and the other variables as independent variable, it was found that: prematurity (OR=3.44,95%CI:2.27-4.33), chronic lung disease (OR=3.12,95%CI:2.19-3.78), atopic child (OR=4.75,95%CI:3.98-5.16), artificial feeding (OR=6.19,95%CI:5.60-7.39), exposure to smoking (OR=2.51,95%CI:2.11-3.73) and age of one year or less (OR=3.44,95%CI:2.27-4.33)- were all significant predictors of hospitalization.(Table 3).

Table 4 shows the distribution of the forty-five hospital-admitted cases of bronchiolitis according to the viral etiology and age. RSV was isolated in 40% of cases and ranked first as an etiological factor for of bronchiolitis, followed by adenoviruses (22%), and parainfluenza virus type 3 (14%). Other causative agents were: Influenza A(11%), Influenza B(7%), Parainfluenza type 1(4%) and Parainfluenza type 2 (2%). About one-half (n=20, 44%) of all viruses were isolated from infants aged 6 months and under. RSV caused 75% of these infections, followed by adenovirus (20%). On the other hand, more than one-third (38%) of the viruses were isolated from children aged 12-24 months with adenovirus making up 24% of these viruses.

Regarding the clinical course and the hospital stay, eight infants needed admission to the Paediatric Intensive Care Unit (PICU) seven (88%) of whom were under six months of age, with one being 10 months old. RSV was isolated in 50% of these infants and 62% of these infants were exclusively on artificial milk. Four of these infants (50%) needed mechanical ventilation and three of them (75%) were less than three months of age.

Fourteen infants (27%) who where admitted with bronchiolitis, developed complications. Six of them developed gastroenteritis, 5 developed aspiration pneumonitis and 3 developed sepsis. One infant with aspiration pneumonitis, sepsis and pneumothorax died. Most of the children (82%) were discharged from the hospital within five days of admission (95% CI: 80.92-83.47). Nine infants (18%) stayed more than seven days and five of them (56%) were infected with RSV and the remaining were infected by adenovirus. None of them was exclusively on breast milk.

Discussion

Breastfeeding has been associated with lower rates of a variety of infant's illnesses[22] including: wheezing, lower respiratory tract illnesses, pneumonia, upper respiratory tract

illnesses, otitis media, gastroenteritis, meningitis, and necrotizing enterocolitis.[19,20,21] It is widely believed that breastfeeding is causally associated with these lower rates, either because breast milk contains elements which might provide both specific and nonspecific protection against illness or because it is more hygienic, particularly in areas with poor sanitation.[9,20,21]

In the present study, multivariate analysis showed that pure formula feeding was a significant predictor of hospitalization for viral bronchiolitis (Adjusted odd ratio = 6.19; 95% CI:5.60-7.39). This was followed by mixed breast and formula feeding (Adjusted odd ratio = 4.15; 95% CI:3.68-5.24). Meanwhile, infants who were exclusively breast fed in the first six months of life had a mild course of the disease, less complications, lower rate of admission to a PICU and shorter hospital stay.

In our study, multivariate analysis showed that bronchiolitis was significantly associated with a history of atopy in the infants and/or in both parents. A close link between RSV-induced bronchiolitis and atopy has been identified in another study.[22]

Other predictors of hospitalization for viral bronchiolitis which showed significant association between bronchiolitis and hospital admission rate are: Age one-year or younger, history of prematurity, chronic lung diseases and passive smoking. Although Lanari et al.[23] and Simoes[24] reported similar findings regarding the bronchiolitis and hospital admission's association with the young age, prematurity and passive smoking, no such association with chronic lung diseases were reported in previous studies. However, one explanation for the new finding in this study may be that most of the premature infants have hyaline membrane diseases at birth and some of these infants will continue to have chronic lung diseases (bronchopulmonary dysplasia) and they are more prone to develop lower respiratory tract infections and more severe clinical course compared to healthy infants. Alterations in airway wall properties in infants with history of chronic respiratory disorders have been demonstrated in a study reported by Frey's group[25].

The incidence of low oxygen saturation (<85%) was higher in infants admitted with bronchiolitis than the control group ($p < 0.05$; adjusted OR = 0.43 95% CI = 0.27-0.56). In larger-scale pediatric studies which included infants with bronchiolitis, Rosen et al.[26] and Rubin et al.[27] reported similar results with base line $SaO2 < 85\%$ pointing to the need for hospitalization.

It has been reported that low socioeconomic conditions constitute a recognized risk factor for RSV bronchiolitis in developed countries.[23,24] Although our results showed no significant difference between the two groups regarding the number of siblings or the monthly-income of the family the socio-economic factors such as over-crowding, educational status, heath service availability and utilization and environment of the place of residence were not investigated. Our data showed that RSV was the most common causative agent for respiratory tract infection in children who were admitted into hospital with bronchiolitis. Similar observation has been reported in other studies[28]. The RSV was recognized as the single most frequent pathogen in the lower respiratory tract infections in infants and young children in the developed countries while little is known about the situation in the developing countries [28]

Nacimento et al.[9] reported that viral respiratory tract infections are common in young children and decreases in frequency and severity with age. Regarding the details of viral etiology, it was found that children less than 6 months of age and, in particular, infants less than three months of age, were more affected with RSV followed by adenovirus. The high prevalence of RSV in children up to six months of age reflects the low antibody response which tends to increase with age, and the limited protection provided by maternal antibodies.[29] In this study, we found that infants younger than 6 months of age had more clinical symptoms and signs and some of them had admission into PICU, while some needed mechanical ventilation. One of these patients died from severe complications. This group of infants had longer hospital-stay compared to children older than six months of age. Our results were similar to a study in Brazil[28] which showed that adenovirus was the most common viral pathogen in children less than two years of age and parainfluenza type 3 was the third most common viral pathogen in infants under six months of age who were hospitalized for bronchiolitis.

Children with a history of congenital heart defects, prematurity, or chronic lung diseases had more severe disease, more need for oxygen and longer hospital-stay than healthy children with similar diagnosis. It has been shown that severe RSV infections may occur in previously healthy infants and young children but premature infants and children with cardiac, pulmonary, or immune system disturbances are at the greatest risk[16,30,31].

Conclusions: Respiratory syncytial virus (RSV) was the most important and the most frequent cause of bronchiolitis in our study, followed by adenovirus, parainfluenza virus and influenza virus. History of prematurity, atopy and chronic lung diseases, as well as the lack of breast-feeding were risk factors in patients with bronchiolitis. Severe clinical course, including: PICU admission, mechanical ventilation and complications were more pronounced in infants younger than six months of age, in infants affected by RSV and in infants who had never been breast fed.

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Serum lipid profile of Nigerian diabetics with end stage renal disease

*Emmanuel I. Agaba[1], Mary Duguru[1], Patricia A. Agaba[2] and Dorcas Angbazo[1]
[1]Department of Medicine, Jos University Teaching Hospital, Jos, P. O. Box 2076, Nigeria
[2]Clinic II, APIN Center, Jos, University Teaching Hospital, Jos, Nigeria
E-mail: eiagaba@yahoo.com

Summary

Background: **End stage renal disease (ESRD) and diabetes mellitus may have lipid abnormalities that act synergistically to place diabetics with ESRD at an augmented risk for cardiovascular morbidity and mortality. We studied serum lipid profile and risk ratio in Nigerian diabetics with ESRD as there is no data in this regard.**

Materials and method: **Serum lipid profile was determined in the fasting state for consecutive diabetic patients with ESRD seen in the Nephrology Unit of the Jos University Teaching Hospital over a 2- year period. A similar group of non- diabetic patients with ESRD and healthy individuals served as controls.**

Results: **A total of 21 diabetics and 30 non- diabetics both with ESRD and 36 controls were studied. High-density lipoprotein (HDL) cholesterol levels were lower in diabetics compared to controls (1.55 $\pm$ 1.14 mmol/L vs. 2.38 $\pm$ 0.57 mmol/L, $p < 0.05$) but similar to that of the non- diabetic group. On the contrary, low-density lipoprotein (LDL) cholesterol levels were higher in diabetics compared to controls (2.87 $\pm$ 2.07 mmol/L vs. 1.44 $\pm$ 0.52 mmol/L, $p < 0.05$). Serum Triglyceride and total Cholesterol levels were similar in all study groups. The LDL/ HDL cholesterol ratio was higher in diabetics compared to non- diabetics and controls (3.65 $\pm$ 3.97, 2.08 $\pm$ 1.72, 0.61 $\pm$ 0.30 respectively, $p < 0.0001$; multiple comparison $p < 0.05$).**

Conclusion: **Cardiovascular risk as imposed by lipid abnormalities is elevated in Nigerian diabetic persons with ESRD compared to their non- diabetic counterparts as reported elsewhere.**

Key-words: ***Atherogenic index, Diabetes, Dyslipidemia, End stage renal disease, Nigerians.***

Résumé

Introduction: Maladie rénale étape finale (MREF) et diabètes mellitus pouvaient avoir anormalite lipide qui agit synergisticalement pour placer diabétiques avec (mref) au niveau augmenté du risque pour la morbidité et mortalité cardiovasculaire. Il s'agit d'une étude du profil sérum lipide et proportion du risque chez diabétiques nigérians atteints du MREF parce qu'il n y a aucune donnée à cet égard.

Méthode et matériel: Profil du sérum lipide était décidé dans un état d'être à la diète pour des patients diabétiques consecutif atteints du MREF vus dans le service nephrologie du centre hospitalier universitaire du Jos au cours d'une durée de 2 ans. Un groupe pareil du patients non-diabétiques avec MREF et individu en bonne santé ont servi comme groupe témoin.

Résultats: un nombre total de 21 diabétiques et 30 non diabétiques les deux avec MREF et 36 groupe témoins ont été étudiés. Lipoprotéine densité élevée (LDE) taux de choletérol étaient en baisse chez des diabétiques par rapport au groupe témoin (1,55 $\pm$ 1,14 mmol/L vs. 2,38 $\pm$ 0,57mmol/L, P < 0,05) mais la même chose par rapport du groupe non-diabétique. Au contraire, lipoprotéine sensité base (LDB) taux de cholestérol étaient élevées chez des diabétiques par raport au groupe témoin (2,87 $\pm$ 2,07mmol/L vs 1,44 $\pm$ 0,52mmol, P <0.05). Sérum Triglyceride et taux de cholésterol total étaient pareil dans tous les groupes étudies. La proportion LDB/LDE cholestérol était élevée chez des diabétiques par rapport au non diabétiques et groupe témoin (3,65 $\pm$ 3,97, 2,08 $\pm$ 1,72, 0,61 $\pm$ 0,30 respectivement, P < 0,0001 comparison multiple P < 0.05).

Conclusion: Risque cardiovasculaire comme imposé par anormalité lipide est élevé chez des individus diabétique nigérians atteints du MREF par rapport aux leurs homologues comme on l'avait rapporté ailleurs.

Introduction

Type 2 diabetes mellitus (DM); a disease commonly complicated by lipid abnormalities is a leading cause of end stage renal disease worldwide. [1-3] Patients with end stage renal disease (ESRD) have lipid abnormalities that place them at an augmented risk for cardiovascular morbidity and mortality. [4-6]. While inconclusive, available data suggests that DM and ESRD contribute synergistically to the dyslipidemia of diabetics with ESRD and the development of atherosclerosis as a consequence [7-9].

Although the vast majority of available literature on lipid abnormalities is in Caucasians, the interaction of race on lipids in chronic renal failure patients has been described [10]. In Nigeria, data on lipid profiles of patients with renal failure is scanty. Given the increasing contribution of diabetes, especially type 2 to the ESRD population world wide [11], we were interested in the lipid profile and risk ratio of Nigerian diabetics presenting with ESRD.

Materials and methods

Study design and setting

This is a case- control study of diabetic and non-diabetic patients with ESRD seen in the Nephrology Division of the Jos University Teaching Hospital, a referral center for the States in North Central Nigeria. The study was carried out over a 2- year period.

Data collection

Consecutive diabetic patients with ESRD seen in the unit within the study period and a similar group of non-diabetic patients with ESRD were recruited for the study. A similar group of healthy individuals served as controls. Participants were interviewed and physically examined. Weight and height were measured for each and body mass index (BMI) calculated. Serum lipid profile was determined for each participant in the fasting state in the routine chemical

*Correspondence

laboratory of the hospital. Risk ratio was calculated as the ratio of LDL cholesterol to HDL cholesterol. The following investigations were also carried out on all the participants: urea, electrolytes and serum creatinine. Glomerular filtration rate was estimated by the 24-hour urinary creatinine clearance.

Laboratory methods

Total cholesterol (TC) and triglyceride were assayed using Lieberman Burchard reaction, while high-density lipoprotein (HDL) cholesterol by enzymatic reaction and low-density lipoprotein (LDL) cholesterol by the Friedwald formula[12]. Serum and urinary creatinine were determined by the Jaffe reaction.

Statistics

Statistical analysis was performed using NCSS statistical software for windows. Results are expressed in means (SD). Analysis of variance (ANOVA) was used to compare means and Bonferroni correction for multiple comparisons. The Chi-Square was used to compare proportions where appropriate. Correlation was performed by the Spearman method. Probability values < 0.05 were considered significant.

Results

Patient characteristics

A total of 21 diabetics and 30 non- diabetics with ESRD and 36 controls were studied. The mean ages of the study

Table 1 Clinical and laboratory parameters of diabetics with end stage renal disease at the Jos University Teaching Hospital

Parameter	Diabetic group	Non-diabetic group	Controls	P value
Number ([a]M/F)	16/5	22/8	24/12	-
Mean age (years)	55.52 ± 9.84	51.86 ± 8.96	49.28 ± 9.82	0.1
[b]BMI (Kg/M^2)	24.51 ± 4.07	21.87 ± 3.72	24.89 ± 2.78	0.002
[c]SBP (mmHg)	165.7 ± 30.8	158.6 ± 37.9	128.9 ± 12.2	<0.0001
[d]DBP (mmHg)*	102.1 ± 21.5	113.2 ± 26.3	83.8 ± 7.6	<0.0001
Serum creatinine (umol/L)*	938.24 ± 404.09	1291.53 ± 632.72	84.36 ± 19.85	<0.0001
[e]GFR (m//min)*	6.08 ± 3.61	3.76 ± 1.56	92.64 ± 26.16	<0.0001
[f]TC (mmo/L)	6.60 ± 2.57	4.22 ± 1.50	4.40 ± 0.89	0.06
[g]TG (mmol/L)	1.86 ± 1.02	1.60 ± 1.56	1.27 ± 0.53	0.1
[h]HDL (mmol/L)*	1.55 ± 1.14	1.43 ± 0.75	2.38 ± 0.57	<0.0001
[i]LDL (mmol/L)*	2.87 ± 2.07	2.19 ± 1.26	1.44 ± 0.52	0.0005

[a]males/females, [b]body mass index, [c]systolic blood pressure, [d]diastolic blood pressure, [e]glomerular filtration rate, [f]total cholesterol, [g]triglyceride, [h]high-density lipoprotein cholesterol, [i]low-density lipoprotein cholesterol.

**No statistically significant difference existed in these variables (i.e. SBP, DBP, GFR, HDL and LDL levels) in diabetic and non-diabetic groups.*

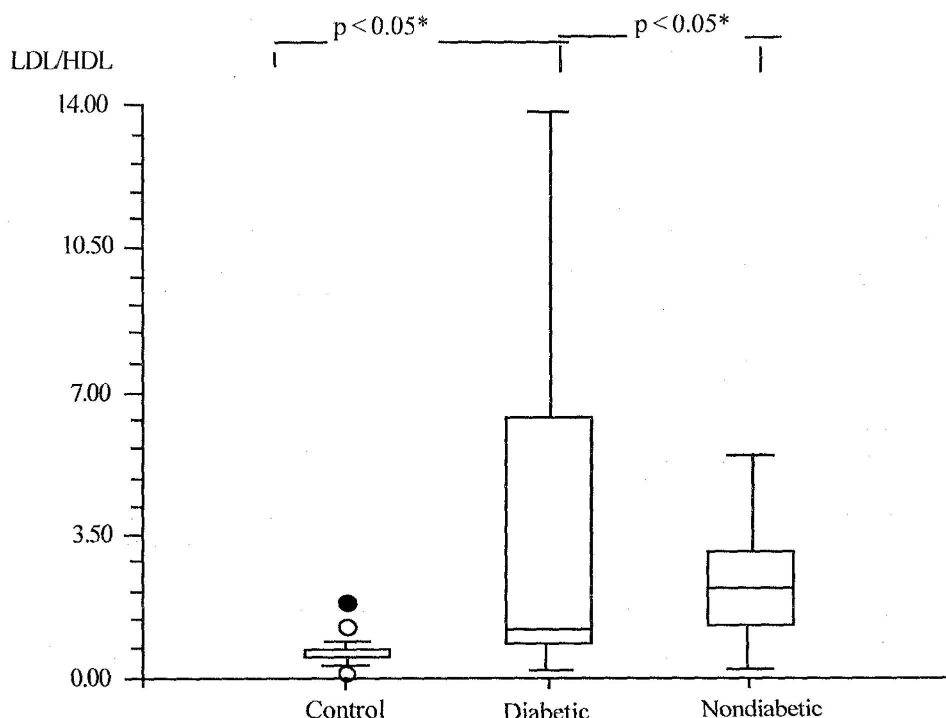

Fig. 1 ***LDL/HDL ratio in patients with end stage renal disease in Jos University Teaching Hospital***

subjects were similar (Table 1). The mean GFR was similar in both diabetics and non- diabetics ($p = 0.1$)

Lipid profile and risk ratio

Serum TG and TC levels were similar in all study groups as shown in the table. HDL levels were lower in diabetics compared to controls (1.55 ± 1.14 mmol/L vs. 2.38 ± 0.57 mmol/L, $p < 0.05$) but similar to that of the non- diabetic group. On the contrary, LDL levels were higher in diabetics compared to controls (2.87 ± 2.07 mmol/L vs. 1.44 ± 0.52 mmol/L, $p < 0.05$).

LDL cholesterol correlated significantly with TC in diabetics ($r = 0.89$). A similar relationship also existed between LDL and TG ($r = 0.73$). A linear regression model that included TC and TG explained 77% of the variance (r^2) in LDL whereas a model that included only TC explained the same amount of variance.

The risk ratio as measured by the LDL/ HDL cholesterol ratio was higher in diabetics compared to non- diabetics and controls as indicated in figure 1.

Discussion

Coronary heart disease is related to serum cholesterol in an exponential fashion, with the LDL cholesterol being largely responsible for this [13]. The HDL cholesterol however, is thought to be protective as the higher the levels the less the likelihood of developing coronary heart disease. The results of this study show that the pattern of increased LDL and reduced HDL exists in Nigerian diabetics with ESRD.

An increased concentration of LDL is associated with increased cholesterol deposition in the vessel wall. This is worsened in the face of HDL deficiency, as there is a decrease in reverse cholesterol transport from tissues to the liver [13]. Though considered to be highly atherogenic, this combination was found to occur in similar proportions in both the diabetic and non- diabetic groups in our study. This is in keeping with previous reports from other parts of the world [14, 15, 9]. Taken in isolation, this would suggest that lipid profiles in diabetics with ESRD corresponded with their non-diabetic counterparts, indicating that the diabetic state does not confer additional atherogenic burden. However, this is not true, as the LDL/ HDL cholesterol ratio has been shown to be a better index of the risk of atherogenicity and its attendant complications than absolute levels of LDL and HDL cholesterols [16]. The LDL/ HDL cholesterol ratio was higher in diabetics with ESRD compared to the non- diabetic group in this study. This suggests that cardiovascular risk due to lipid abnormalities is higher in diabetic patients with ESRD compared to their non- diabetic counterparts despite seemingly similar LDL and HDL levels.

Diabetic patients in this study had a significantly higher BMI compared to their non-diabetic counterparts. It is possible that this could have contributed to the difference in the lipid profile of the two groups. However, our study was not designed to find out the cause of this difference. Further studies may be needed to determine factors that influence this risk as they would form possible points of targeted therapy.

Though racial differences in lipid and cardiovascular risk abnormalities have been noted in the general population and in the ESRD population [10], this study has demonstrated that cardiovascular risk as indicated by the atherogenic index is elevated in Nigerian diabetic persons with ESRD as have been reported in other parts of the world. In conclusion, the study shows that the diabetic and ESRD states contribute synergistically to the increased atherogenic burden of diabetics with ESRD as have been reported in other parts of the world.

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Pediatric intussusception in a Saudi Arabian tertiary hospital

T. A. Al-Malki
College of Medicine & Medical Sciences, Taif University - Taif & Department of Pediatric Surgery
Aseer Central Hospital, Abha, Saudi Arabia
E-mail: taam_tm@yahoo.com

Summary

There are various methods of diagnosing and treating pediatric intussusception. This is an indication that no single method is acceptable to all and no single method is ideal for all cases. Because of this, we reviewed the cases and management of intussusception, seen at Aseer Central Hospital over a 7-year period.

Materials and methods: **Thirty four pediatric patients admitted at Aseer Central Hospital over a 7-year period (from 1993 to 2000) at Aseer Central Hospital, Southwestern region of Saudi Arabia were reviewed. These are by no means all the cases of intussusception seen during this period. Adult cases and incomplete records of pediatric cases were not included in this series. The 34 cases that met the objectives of this paper were analyzed with regards to the age group distribution, sex, nationality, type and site of intussusception, the cause of intussusception, the method of diagnosis and the treatment given, were also reviewed. Their case files were reviewed and used for the analysis.**

Results: **The age range was 2 months to 8 years (Mean = 10.86 months). There were 21 boys and 13 girls, a male : female ratio of 1.6:1.0. All (100%) presented with vomiting, 91% with bloody stools and 82% with colicky abdominal pain. Twenty-eight patients (82.3%) had diagnostic barium enema, and 8 of these were successfully reduced. Exploratory laparotomy was performed for 26 patients and 6 of this required surgical resection. There was no mortality in this series, but one patient had a wound dehiscence which was treated conservatively.**

Conclusion: **The management of pediatric intussusception depends on the presentation, the available facilities and the expertise of the treating surgeons.**

Key -words: *Pediatric intussusception, Management, Saudi Arabia.*

Résumé

Il y a des méthodes diverses de faire le diagnostic de et de soigner l'intussusception pédiatrique. C'est à dire, qu'il y a une indication qu'une seule methode n'est pas acceptable pour tous et aucune méthode est idéale pour tous les cas. A cause de ce phénomène, nous faisons le bilan des cas et la prise en charge des intissusception vues au centre hospitalier d'Aseer au cour d'une période de 7 ans.

Matériels et méthodes: Trente quatre patients pédiatriques admis au centre hospitalier d'Aseer au cours d'une durée de sept ans (de 1993 au 2000) au centre hospitalier de la région du Sud ouest d'Arabie Saoudite ont été passé en revue. Certes, il y d'autre cas d'intussusceptions vues pendant cette période. Cas des adultes et dossiers incompet ne sont pas compris dan ces séries. Les cas de 34 qui ont satisfait les objectifs de cet étude ont été analysés en ce qui concerne la distribution de groupe d'âge, sexe, nationalité, type et le siège d'intussusception la cause d'intissusception, la méthode du diagnostic et le traitement donné ont été egalement passé en revue. Leurs dossiers medicaux ont été passé en revue et utilisés pour l'analyse.

Résultat: La tranche d'âge était 2 mois au 8 ans (moyen 10,86 mois). Il y avait 21 garcons et 13 filles, proportion sexe masculin : sexe féminin de 1,6 : 1,0. Tous (100%) se sont présentés avec vomissements, 91% avec fèces du sang 91% et 82% avec douleure abdominale coligue. Vingt huit patients soit 82,3% avaient eu le diagnostique anémie barium, dont 8 était connu du succès. On avait opéré la laparotomie exploratoire pour 26 patients dont 6 demandent l'intervention chirurgicale. Il n'y avait aucune mortalité dans cette série, mais un patient avait une blessure dehiscence qu'on avait soigné du façon classique.

Conclusion: La prise en charge d'intussusception pédiatrique dépend sur la présentation aménagement disponible et la compétence des chirurgiens qui soignent les patients.

Introduction

Diagnosis and Management of Intussusception remain controversial[1]. Ravitch[2] advocated usage of barium enema even in all suspected patients. Controversy continues because of the many factors that may affect success of this modality of treatment. Factors may include delay in presentation and neonatal intussusception[3] facilities available and the experience of the treating surgeon.

The purpose of this paper is to present our experience at Aseer Central Hospital over a 7-Year period in managing this condition.

Results

The youngest patient was two months and the oldest 8 years. Average age was 10.86 months. Seven patients were over 12 months of age. Twenty one patients were males and thirteen patients were females, a male to female ratio of 1.6 to 1.0. All the patients were Saudi nationals.

All patients presented with vomiting. Twenty eight (82%) presented with colicky abdominal pain and thirty one (91%) with bloody stools. These presentations were in various combinations among the thirty-four patients. Duration of

Table 1 Findings of Barium enema

Site of Pathology	No of Patients
Ileocolic	19
Ascending colon	4
Transverse colon	7
Descending colon	6
Not recorded	1

Correspondence

symptoms ranged from 6 hours to seven days with an average of 38 hours. Because of the delay in presentation, physical findings varied. Twenty one patients (61.7%) presented with abdominal distension, twenty three (67.7%) with dehydration and twenty patients (58.8%) had a palpable abdominal mass.

Plain abdominal X-rays were performed for 31 patients and 28 of them showed air fluid levels and distended bowel. Diagnostic barium enema was done for twenty-eight (82.3%) patients. The other 6 patients were not fit for the study because of their general condition and were operated upon as soon as resuscitation was effected.

Barium enema showed the exact "hold up" at the site of obstruction as in table no. 1.

Some patients showed more than one site of pathology. Only one patient underwent abdominal ultrasound to diagnose his pathology and hence was not subjected to the barium enema study. Barium enema was successful in reducing the intussusception in eight patients. A total of twenty six patients underwent operative exploration. Twenty patients were successfully reduced manually intraoperatively. This includes 20 patients who could not be reduced by barium enema treatment. Out of the 26 patients operated upon only six needed surgical resection. Four patients were re-admitted 4 to 12 days post operatively because of recurrence and were reduced with hydrostatic barium enema. Four patients had enlarged mesenteric lymph nodes, two had Henoch-Schonlein purpura, and one patient had Meckel's diverticulum initiating the intussusception. No mortality in this group and apart from the recurrence in 4 patients, one patient had superficial wound dehiscence which was treated conservatively.

Discussion

Classical signs and symptoms of pediatric intussusception include abdominal pain, vomiting, rectal bleeding and abdominal mass. Delay in presentation in our group of patients could explain the high incidence (91%) of rectal bleeding as compared to others[4,5,6]. Presence of air fluid levels and bowel distensions on plain abdominal X-rays, although not specific may prove to be of good value as noticed by Luke and his colleagues[7] that its presence may decrease success rate of barium enema reduction rate from 81% to 49%.

Barium enema was diagnostic in almost all cases subjected to the study. It has been reported that ultrasound could be a superior tool and much less invasive for diagnostic purpose[8]. When barium enema is used for reduction, a wide variation of success rate has been reported ranging between 18% and 100% [8,9]. Our success is comparable to others. We cannot state which is the preferred reducing agent barium, gas or saline. Early decision to reduce the intussusception surgically was the standard treatment of choice before the 70's[10]; this practice did not disappear totally but decreased from 82% to 22%. [8,12] as hydrostatic reduction took over. However in cases of adult intussusception, surgery is indicated because there is usually a cause e.g. neoplasm[11]. In our group of patients 76% underwent laparotomy, and our decisions were based on duration of symptoms, signs and symptoms of peritonitis, age of the patient and hydrostatic pressure reduction failure. Only 6 patients needed surgical resection of the affected intussuscepted bowel. Because of our policy to intervene surgically early, there was no mortality. Stringer et al[13] reviewed deaths from intussusception in England and Wales between 1984 -1989 and found a total of 33 cases. Factors related to mortality were a delay in diagnosis, inadequate intravenous fluid therapy and delay in recognizing recurrent or residual intussusception.

In conclusion, we feel that the patient's own clinical status, response to diagnostic and therapeutic measures dictate the line of management.

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Table 2 Distribution of the studied cases according to survival and pneumonia at presentation

Pneumonia at presentation	Deaths n	Deaths %	Survivals n	Survivals %	Total n	Total %
None/mild	15	48.4	68	97.1	83	72.2
Moderate/severe	16	51.6	2	2.9	18	17.8
Total	31	100	70	100	101	100

$\chi^2_{(1)} = 34.87$ $p < 0.001$

Table 3 Direct causes of mortality

Causes of death	n	%
1. Avoidable causes		
• Primary sepsis	10	32.3
• Technical problems	8	25.8
• Severe pneumonia	5	16.0
II Unavoidable causes		
• Major congenital anomaly	6	19.3
• Bilateral renal agenesis	2	6.5

Table 4 Organisms recovered from blood at death (n = 23)

Single organism	n	%	Combined infection	n	%
Klebsiella spp	5	21.7	Klebsiella spp & MRSA	1	4.3
P. aeruginosa	5	21.7	Klebsiella spp & P. aeruginosa	1	4.3
Serratia spp	4	17.4	Candida & P. aeruginosa	1	4.3
Enterobacter spp	1	4.3	Klebsiella spp & Serratia spp	1	4.3
Staph epidermidis	1	4.3			
Salmonella spp	1	43			
Citrobacter spp	1	4.3			
Staph aureus	1	4.3			
Total	19	82.6		4	17.4

Table 5 Full model logistic regression analysis for factors predicting mortality of the studied neonates

The linear combination (Z) = -0.1049 constant	
+ 1.1117	if the associated anomaly is either major or incompatible
- 3.9397	if no pneumonia
- 4.8554	if mild pneumonia
+ 1.7205	if there is major leakage
+ 1.8545	if there is sepsis at presentation
+ 3.5070	if there is acquired sepsis
+ 1.7333	if the gap is long

Associated anomaly is coded (0) for none or minor and (1) for major or incompatible. Leakage by barium is coded (0) for no major leakage and (1) for major leakage. Sepsis at presentation and acquired sepsis are coded (0) for no and (1) for yes. The gap is coded (0) for short and (1) for long gap.

44 neonates (13.6%) in risk group B. All cases died due to verified sepsis, proven by blood cultures. Four cases died due to secondary sepsis, three of them were due to major leaks. The remaining one was due to inadvertent division of a bronchus. Twenty-two patients (71%) died among 31 neonates in group C. Two patients (6.5%) died due to bilateral renal agenesis. Six patients (19.3%) died due to major associated anomalies. Eight patients (25.8%) died due to primary sepsis. One patient (3.2%) died because of secondary sepsis due to peritonitis after jejunal perforation. Five patients (16.1%) died as a result of severe pneumonia. Twenty-three patients (74.2%) of those who died had positive blood

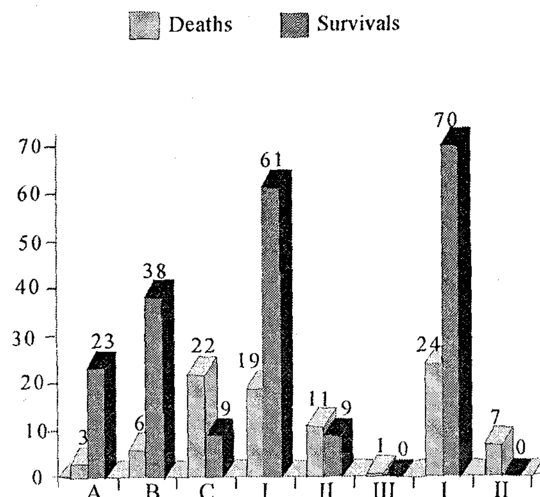

Fig. 1 ***Distributions of the studied cases and the different groups of classification.***

cultures. The different types of organisms recovered are shown in table 4. Waterston C patients had 71% mortality rate which is significantly higher ($p < 0.05$) than each of Waterston A (11.5%) and Waterston B (13.6%). The mortality rates for Montreal-II patients were statistically greater than Montreal-I (100% vs. 25.5%). Similarly, the mortality rates for class 3 (100%) in Spitz et al' classification were significantly higher ($p < 0.05$) than each of class 1 (23.8%) and class 2 (55%).

Table 5 shows the logistic regression equation for factors significantly predicting mortality of the studied neonates. From the equation, it is noted that the predictors increasing the probability of mortality were the presence of major or incompatible associated anomalies, sepsis at presentation or that acquired during hospitalization, if the gap was long, and if there was major leakage as shown by the different values of the estimated coefficient. On the other hand, compared to severe pneumonia, none and mild pneumonia are associated with decreased log odds of mortality. This equation of full model logistic regression is statistically significant, where the model χ^2_7=69.795 ($p < 0.0001$). This model explained about 70.8% of the variation in the occurrence of mortality.

The equation succeeded in 91% to correctly classify the studied cases, being better in classifying survivors (94.2%) than deaths (83.9%).

Regarding correlation between mortality in the present study and other prognostic classifications, it was found that Kendall's tau-b value is the highest for the Waterston (0.479), followed by Montreal (0.410), then that of Spitz (0.297). This means that Waterston classification is the most applicable in our group of patients.

Discussion

The factors predicting early postoperative mortality could be divided into preoperative, operative and postoperative. The preoperative factors are sepsis at presentation, severe pneumonia and major or life threatening anomalies. Sepsis at presentation may be due to perinatal factors, maternal (e.g. premature rupture of membranes) or neonatal factors (e.g. impaired host defense) or due to delayed diagnosis. Although, the incidence of clinically proven sepsis in the neonate is only one to five per 1000 live birth, the mortality rate remains high at 30% to 59%[8]. The low rate of appreciation of polyhydramnios in this study (31.6%) might be due to lack of health awareness among pregnant mothers. The delay in diagnosis leads to preoperative feeding, aspiration and increased incidence of pneumonia. Those who died were significantly older at presentation than those who survived. The study showed that those who presented late had higher incidence of pneumonia. Both low gestational age and low birth weight were significantly higher among deceased neonates ($p < 0.03$ & 0.007 respectively). However, gestational age and birth weight were not critical variables when factors were analyzed using the logistic regression.

Eight patients died due to major and life threatening associated anomalies. We think that preoperative abdominopelvic ultra sonography (U. S) and echocardiogram should be the minimum investigation prior to EA repair[9]. This study showed an agreement with Saing et al[10] that the multiplicity of the systems involved significantly increased mortality ($p = 0.0009$). Historically, the overall survival rate in EA with CHD has improved from 3% between 1948 and 1962 to 43% between 1963 and 1977 then to 69% between 1978 and 1988[11]. In this study, the overall survival rate in patients with CHD and EA was 52%.

Long gaps were important intraoperative factor that increased mortality in this study. Although, all patients were ventilated post-operatively, long gaps showed high incidence of mortality. Brown and Tam in 1996 used the measurement of gap length as a simple predictor of outcome. Long gaps (greater than 3cm) had higher mortality rate than both intermediate (>1 to ≤3cm) and short gaps (≤ 1cm)[12].

The postoperative factors predicting mortality were major leakage and sepsis. Postoperative esophageal dysmotility was a prominent feature in this study (36%). This may play a role as a factor for morbidity and mortality. However, this was difficult to evaluate retrospectively and warrants further investigation. The factors causing anastomotic leakage are the use of silk suture material, tension at the anastomotic site, end-to-end anastomosis and interference with the blood supply due excessive mobilization[13-15]. Braided silk was associated with an increased incidence of leakage when compared with polyglycolic acid or polypropylene sutures. The overall reported leakage rate with 5/0 silk ranged from 33% to 36%[13,15]. In this study, silk was associated with 25% leakage rate while prolene was associated with only 9%. The role of the surgeon cannot be ignored as a risk factor for leakage as highlighted by Willis Potts in 1950 and cited by Spitz in 1987[16]. In fact, most of the technical errors in this study were made by less experienced surgeons before the year 1991. the incidence of leakage varies widely from 4% to 36%[17,18]. In this study, there were overall 11 cases (12.6%) out of 87 patients with leaks. It is interesting to know that all but one occurred in groups A and B according to Waterston classification. Probably, early in the course, only full term healthy neonates were offered treatment in this institution.

Primary sepsis was the main cause of mortality in this study (32.3%) followed by secondary sepsis due to major

technical problems (25.8%). Twenty-three patients of the overall mortality (74.2%) proved to have positive blood culture and death. It is worthy to know that eight cases of primary sepsis (25.8%) occurred in Waterston group C patients, two (6.5%) in group B patients and none in group A. Secondary sepsis due to technical problems occurred in three patients (9.7%) in group A and four patients (12.9%) in group B and only one (3.2%) in group C.

In a study done by Spitz et al in 1994[4], there were 357 patients with EA and 15 with H-type in a period between 1980 – 1992. Forty-six patients died. The most common causes were major and life threatening associated anomalies. Some authors reported that none of their patients died due to primary sepsis[19, 20]. In a study done by Yagu et al, 20 patients out of 113 died. Five due to pneumonia (25%) and four due to sepsis (20%). The authors of this study considered pneumonia as an essential preoperative risk factor when therapeutic strategies for EA were selected. So, we proposed a modified Spitz classification by replacing major cardiac anomalies and low birth weight[5], with pneumonia.

Conclusion

The study showed that primary sepsis was the main cause of death followed by sepsis due to technical problems. The risk factors predicting mortality were sepsis at presentation, severe pneumonia, major and life threatening congenital anomalies, long gaps, major leaks and sepsis acquired during hospitalization.

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Evaluation of two novel Ziehl-Neelsen methods for tuberculosis diagnosis

*E. H. Frimpong, R. Adukpo and K. Owusu-Darko[1]
*Department of Clinical Microbiology,
School of Medical Sciences, KNUST, Kumasi
[1]Department of Bacteriology,
Noguchi Memorial Institute of Medical Research, Legon.

Summary

Background: **Currently, the diagnosis of tuberculosis (TB) in Ghana relies on direct sputum smear, Ziehl- Neelsen (ZN) staining method. This method has low sensitivity and poses some health risks. The study was to compare the, direct sputum smear, (ZN) staining method against two newer ZN methods; 1% Sodium hypochlorite (NaOCL)-xylene floatation and 1% NaOCL sedimentation methods, to determine the most sensitive and the safest.**

Study design: **A prospective descriptive study involving 150 adult patients attending Komfo Anokye Teaching Hospital, Kumasi, Ghana suspected of pulmonary tuberculosis, using the three ZN microscopy methods: direct sputum smear, 1% NaOCL sedimentation, and 1% NaOCL-xylene floatation, for the detection of acid fast bacilli (AFB). Sputum culture on Lowenstein-Jensen (LJ) slopes was used as the gold standard for determining the sensitivity and specificity rates.**

Results: **The sensitivity rates of NaOCL sedimentation, NaOCL-xylene floatation and direct smear methods were 77.2%, 71.8% and 66.3% respectively. The specificity rate was 95.9 % for all three methods. Whereas the difference between the NaOCL sedimentation and the direct smear methods was statistically significant (P= 0.0446), that between the NaOCL-xylene floatation and direct smear was not (P=0.1788).**

Conclusion: **In spite of the cost of chemicals, the hypochlorite sedimentation method was found to be the most accurate and the safest.**

Key-words: *Tuberculosis, Laboratory infection, Sputum microscopy.*

Résumé

Introduction: Actuellement, le diagnostic de la tuberculose (TB) au Ghana compte sur crachat barbouille, méthode de barbouiller de Ziehl-Neelsen (ZN). La sensitivité de cette méthode est en baisse et elle menace quelque risques pour la santé.

L'objet de cette étude est de comparer le rachat barbouille direct, (ZN) méthode de barbouiller contre deux plus nouvelles; 1% méthode de ZN hypochlorure de sodium (NaOCL) - flottation xylene et 1% NaoCL méthode de sédimentation afin de décider le plus délicat et sans danger.

Plan d'étude: Une étude en perspective et descriptive impliquant 150 patients adultes soignès dans le centre hospitalier universitaire de Komfo Anokye, Kumasi, Ghana, présumé de la tuberculose pulmonaire à travers l'ultilisation de trois méthodes de la microscopie ZN: Crachat barbouille direct, 1% NaoCL sédimentation, et 1% NaoCL-flottation xylene, pour la détection d'acide rapide bacilli (ARB). Culture Crachat sur la pente de Lowenstein-Jensen (LJ) a été utilisé comme étalon-or pour décider le caractère délicat et taux de la spécificité.

Résultats: Taux de caractère délicat de la sédimentation de NaoCL, NaoCl-xylene flottation et méthode directe de barbouiller étaient 77,2%, 71,8% et 66,3% respectivement. Taux de la spécificité était 95,9% pour toute les trois méthodes. Tandis que la différence entre la sédimentation de NaOCL et les méthodes de barbouiller direct était statistiquement important (P = 0,446), celui entre la flottation xylene NaOCL et barbouiller direct n'était pas (P = 0,1788).

Conclusion: En dépit du frais du produit chimique, la méthode de la sédimentation d'hypochlorure était notée d'être la plus correcte et sans danger.

Introduction

Tuberculosis (TB) remains a deadly disease worldwide. In Ghana, it is estimated at 30,000 new cases and 15,000 deaths each year.[1, 2] TB in man is caused by the *Mycobacterium tuberculosis* complex, made up of *M. tuberculosis* (Mtb), *M. bovis*, *M. africanum* and *M. microti.* [3]

For the laboratory diagnosis of TB, based on the detection of the TB bacilli in clinical specimens, methods available are, microscopy, culture techniques or nucleic acid amplification tests, or serological methods.[3-5]

The increasing health threat of the emergence of multidrug resistance TB (MDRTB), and the devastating effect of the combination with HIV/AIDS, call for rapid diagnosis, hastening the search for simpler, rapid, cheaper, but safer methods for diagnosis of TB. [4-7]

Though sputum culture on Lowenstein-Jensen (L J) medium to isolate *Mycobacterium* species is the "gold standard" in the diagnosis of TB, growth may take up to 8 weeks. [3-7]

Microscopy, using either Rhodamine-auramine or ZN stain, serology and nucleic acid amplification tests remain the logical candidates. Serological methods, though rapid and probably safe, have been unpopular due to their low sensitivity and specificity,[4,8] and the nucleic acid amplification tests such as polymerase chain reaction (PCR) and Gene probes though rapid and safe require higher training and are more expensive. [5,8]

The WHO National Tuberculosis Control Programme has adopted Ziehl-Neelsen (ZN) staining sputum smear microscopy, to make TB diagnosis accessible to all patients at all levels of health institutions.[2,4] For, apart from the use in primary TB diagnosis, ZN microscopy is also used in the monitoring of reduction of bacilli by effective treatment.[5,9] ZN, therefore, remains the cornerstone of TB diagnosis in many low-income countries. [6,7]

The ZN method, though simple, rapid, inexpensive and

*Correspondence

specific, however, has low sensitivity.[3-5,9,10] The microscopic detection of acid-fast bacilli require nearly 10^4 of bacilli per millilitre of sputum.[4,11]

Again, the handling of sputum is also dangerous to laboratory workers.[7,12-14] In the ZN technique, a fixed sputum smear is covered with strong carbol fuchsin and heated. The dye is retained, despite decolorisation with sulphuric acid, showing acid-fast bacilli (AFB).[3-5] The heating stage of ZN creates aerosol and is dangerous if it is not done in a safety cabinet.[12-16] Unfortunately, many laboratory workers do not use safety cabinets as reported by Hass.[15]

It has been observed that the increasing awareness of the health threat of the emergence of multi drug resistance TB (MDRTB), the devastating association with HIV/AIDS, has hastened the search for simpler, rapid, cheaper, but safer methods for diagnosis of TB.[7,12-16]

Concentration of sputum, either by centrifugation or sedimentation, prior to smear microscopy has been shown to be superior to direct smear microscopy.[9,17] Concentrating the sputum alone does not make the sputum safer, but could rather make it dangerous.

Soltys et al[18-20] have shown that prior treatment of sputum with 1% hypochlorite (NAOCL) before ZN staining, kills the *Mycobacteria* rendering the procedure safer than the older direct smear method. Two methods, using sedimentation and floatation, after prior treatment of sputum with hypochlorite (NAOCL) before ZN staining are available.[19,20] We are not aware of any studies evaluating the three methods in terms of accuracy, sensitivity and safety.

Our objective was to evaluate the three methods, direct sputum smear; sodium hypochlorite (NaOCL)-xylene floatation and sodium hypochlorite (NaOCL) sedimentation, ZN staining methods, to determine the most sensitive and the safest for TB Diagnosis.

Subjects and methods

The study was undertaken at the Chest clinic and the Microbiology laboratory of Komfo Anokye Teaching Hospital, Kumasi, Ghana (KATH), for 6 months in 2003. It was approved by the SMS Ethical Committee, and informed consent was granted by the subjects.

Study area

KATH, an 800-bed hospital, situated in Kumasi, the capital of Ashanti Region of Ghana, population (approx. 700,000), is a referral hospital for northern Ghana. Referrals are also seen from all the regions and other neighbouring countries.

Subjects

Sputum specimen of 150 patients suspected of pulmonary tuberculosis, aged 12 to 65 years, who had not received prior TB treatment were screened using three ZN staining methods: direct smear, 1% NaOCL-xylene floatation smear and 1% NaOCL sedimentation smear ZN microscopy methods. The methods have already been described previously as reported:

(i) Direct smear microscopy: [3-5]

(ii) 1% NaOCL-xylene floatation smear microscopy: [19]

(iii) 1% NaOCL sedimentation smear microscopy:[20]

Culture[3-5]

All specimens were cultured on glycerol Lowenstein-Jensen (LJ) slopes for the isolation of *M. tuberculosis*, and identified using standard biochemical tests. The isolation rate of *Mycobacteria tuberculosis* was used as the gold standard for determining the sensitivity and specificity rates for the other methods under review.

Hypothesis testing

Test of difference of population proportions was used to evaluate the differences between smears made directly from sputum and those made from hypochlorite sedimentation and hypochlorite-xylene floatation processing. Statistical significance was defined at a confidence interval of 95% ($P< 0.05$).

Results

Of the 150 samples processed 48 (32.0%), 42 (28%) and 35 (23.3%) were positive for AFBs by the 1% NaOCL-xylene floatation, NaOCL sedimentation and direct smear methods respectively. Using the results of sputum culture as gold standard, the sensitivity rates of 1% NaOCL sedimentation, xylene floatation and direct smear methods were determined as 77.2%, 71.8% and 66.3% respectively. (Table 1).
The specificity rate was 95.9 % for all three methods.

Whereas the difference between the NaOCL sedimentation and the direct smear methods was statistically significant ($P= 0.0446$), that between the NaOCL-xylene and direct smear was not ($P=0.1788$). Hence the NaOCL sedimentation method is the most sensitive, and the safest.

Of the 150 specimen cultured, 19 were excluded from the culture results, because bacterial and fungal contamination made identification of growth unreliable.

Table 1 Results of Ziehl-Neelsen staining of sputum smears prepared by 3 methods.

	Microscopy results by indicated method		
	NaOCI sedimentation	NaOCI-xylene floatation	Direct smear
Total no of positive cases	48	42	35
Total no of negative cases	102	108	115
Total no of specimens examined	150	150	150

Table 2 Comparison of culture with the 3ZN staining methods

	Culture (LJ slope)	Microscopy results by indicated method		
		NaOCI sedimentation	NaOCI-xylene floatation	Direct smear
Total no of positive cases	61	43	37	30
Total no of negative cases	70	88	94	101
False positive	0	3	3	3
False negative	0	18	24	31
Sensitivity (%)	100	77.2	71.8	66.3
Specificity (%)	100	95.9	95.9	95.9
Total no of specimens evaluated	131	131	131	131

NB Numbers of the 3 methods have been adjusted from 150 to 131 for comparision with the 131 culture positive samples.

Table 3 Correlation of sensitivity to smear preparation and AFB concentration

	No of smears obtained by		
Score[a]	NaOCI sedimentation	NaOCI-xylene floatation	Direct smear
3+	28	24	24
2+	6	8	6
1+	8	7	3
Scanty	6	3	2

Semi-quantitative grading based on grading of results from smear examination (taken from "Tuberculosis Microscopy, A laboratory manual for Ghana")

Negative	No AFB found in at least 100 fields
Scanty (exact number):	1 - 9 AFB found in 100 fields
(1 +)	10 - 99 AFB found in 100 fields
(2+)	1- 10 AFB found per field in at least 50 fields
(3+)	More than 10 AFB per field in at least 20 fields

Three slides were found positive by all three microscopy methods, but negative by culture.

Table 2 shows the comparison of the three methods to culture in the detection of AFBs.

Table 3 shows the sensitivity of AFB detection in sputa containing unequal concentration of bacilli. Sputa with a high concentration of AFBs, (i.e. 3+ and 2+), sensitivity was similar for all 3 methods. Of the 48 AFB positive smears (3+ and 2+), 34, 32 and 30 were by NaOCl-sedimentation, NaOCl-xylene floatation method and direct smear microscopy respectively.

For sputa with a low concentration of bacilli (1+), the sedimentation method was superior to the other two. NaOCl-sedimentation detected 14 as against 5 for direct microscopy. (P=0.0559). The xylene floatation detected 10 as against 5 by the direct method (P=0.1469).

Discussion

Microscopic examination of sputum for acid-fast bacilli (AFB) plays a key role in the initial diagnosis of pulmonary tuberculosis (PTB), monitoring of treatment and the determination for the eligibility for release from isolation.[4,5,9]

The study found the sensitivity rates of 1% NaOCL sedimentation, 1% NaOCL-xylene floatation and direct smear methods to be 77.2%, 71.8% and 66.3% respectively. The specificity rate was 95.9 % for all three methods. Whereas the difference between the NaOCL sedimentation and the direct smear methods was statistically significant (P= 0.0446), that between the NaOCL-xylene floatation and direct smear methods was not (P=0.1788).

The study confirms as shown [9] that treatment of sputum with NaOCl followed by overnight sedimentation increases the sensitivity of sputum microscopy significantly. This is closely followed by the NaOCl -xylene floatation method, and then the direct smear microscopy.

Work related infections in personnel working in mycobacteriology laboratory is significant because aerosols produced during smear preparation, staining and processing for culture are sources of infection. [12-14]

Of the 150 specimens 48 (32.0%) smear-positive cases were detected by the NaOCl-sedimentation method as against 35 (23.3%) by direct smear microscopy. This means that 13 AFB positive patients were missed by the direct method. (Table 2)

Study showed that of the 13 missed positive smears, 9 were seen in sputa with low concentration of bacilli (1+ and scanty). The low sensitivity of direct smear has been noted [10] Meticulous preparation and multiple examination of smears could increase the sensitivity of smear microscopy to 55% [7,10] but, experience shows that it is often very difficult to maintain a high level of performance in overburdened control programmes [7,13]

Major disadvantages of the sedimentation method are the laborious sample preparation and the delay in reporting. However, since current diagnosis by smear microscopy requires three specimens collected over two days, the increased sensitivity would compensate for any delay. The avoidance of a centrifuge is an added advantage as noted elsewhere.[20]

The 42 smears in 150 detected as positive by the NaOCL-xylene floatation method was slightly lower than that obtained by sedimentation 48 in 150 (p=0.2843). The sensitivity of the method is 71.8% as against the 66.3% of direct smear; this is not significant statistically (p=0.1469). Though the method is not as sensitive as the NaOCl sedimentation method, it is as safe as the sedimentation method but has the advantage of being quicker, with results being available within 24 hours.

Again, the xylene floatation method detected more positives from specimens with low number of bacilli than the other two. Indeed, 7 cases reported negative by direct smear microscopy, 5 were positive but had low number of bacilli (1+ and scanty) (Table 3).

A major disadvantage of xylene is its inflammability, making it a fire hazard in the laboratory. Xylene, with a specific gravity of 0.86 at 20°C/4°C (compare 1.00 for water) is lighter and immiscible with water. The debris remain in the water layer, but the AFBs concentrates in the xylene, attributable to the unique hydrophobic, high lipid content of the cell walls of acid-fast bacilli (AFBs), which makes them buoyant [21] making them more discernible for diagnosis.

Three slides found positive by all the three microscopy methods were found to be negative on culture. This might be due to organisms probably killed during decontamination with NaOCl or they could be species like *Mycobacterium bovis, which* do not grow on glycerol, since only glycerol LJ slopes were used.

In spite of the cost of chemicals, the hypochlorite sedimentation method was found to be the most accurate and the safest

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Epidemiology of non-trauma surgical deaths

***Chima K. P. Ofoegbu, Temitope Odi, Olubunmi Ogundipe, Jones Taiwo and Babatunde A. Solagberu**
Department of Surgery University of Ilorin Teaching Hospital
P. M. B. 1459, Ilorin, Nigeria.
E-mail: chimaofu@yahoo.com

Summary
Background and objectives: **It is established that 70 % of morbidity and 75 % of mortality in the surgical accident and emergency (A and E) are due to trauma. However, non-trauma deaths still are an important entity requiring a specific study to highlight their pattern, and institute improvement strategies to lower death rates.**
Methodology: **A retrospective analysis among non-trauma surgical deaths that occurred in the A and E Department of the University of Ilorin Teaching Hospital, Ilorin, Nigeria, over 24 months was done. Data collected included age, sex, interval between onset of illness and presentation, clinical features, occurrence of prior hospital visit, investigations done, cadre of surgeons that reviewed the patients and the interventions done as part of treatment before death.**
Results: **4164 patients visited the A and E, 2916 (70 %) were trauma, 1251 (30 %) were non-trauma conditions. There were 171 deaths, 129 (75.4 %) were trauma deaths while 42 (24.6 %) were non-trauma deaths. Thirty (71.4 %) of the 42 had complete information for analysis. Age range was 2-95 years (mean 42.7 ± 21.8 years) comprising 18 males and 12 females. Patients with generalized peritonitis were in the majority 8 (26.7 %) comprising typhoid perforation 4, ruptured appendix 2 and perforated peptic ulcer 2. Terminal malignancies followed closely with 6 deaths (20.0 %), 3 from urological causes (2 prostatic and 1 bladder cancer), acute gastrointestinal bleeding 3 (10 %), intestinal obstruction 1 (3.3 %) and others. Nineteen patients (63.3 %) had visited a previous hospital where they had spent <48 hrs (4 patients), 48hrs -1 week (4 patients) and >1 week (2 patients), undocumented (9 patients). Less than 40% of the patients were able to do the requested investigations (electrolytes, X-rays and ultrasound) or got the desired interventions (blood and antibiotics)**
Conclusion: **Non-trauma deaths account for a quarter of the deaths in the A and E, generalised peritonitis and advanced malignancies were the main conditions responsible and characterized by late presentation, having spent a considerable time in a previous private hospitals.**

Key-words: ***Epidemiology, Non-Trauma deaths Nigeria***

Résumé
Introduction et objectif: On dirait que 70% de la morbidité et 75% de la mortalité dans le service des urgences (SU) sont attribuables au traumatisme. Toutefois, des morts à travers non traumatisme sont encore une entité importante qui demande une étude à part afin de souligner leur tendance, et établir des stratégies pour une amélioration afin d'abaisser le taux de mortalité.
Méthodologie: Une analyse rétrospective parmi des morts chirurgicales non traumatisme qui ont eu lieu dans le service des urgences au cours de 24 mois a été effectuée. La collecte de données compris âge, sexe, intervalle entre le début de la maladie et présentation, traits cliniques, la fréquence avant d'aller à l'hôpital, des investigations effectuées, le cadre des chirurgiens qui ont fait le bilan des patients et des interventions chirurgicales effectuées comme partie du traitement avant la mort.
Résultats: 4146 ont été inscrit dans le (SU), 2916 soit 70% étaient traumatisme, 1251 soit 30% étaient des conditions non-traumatisme. Il y avait 171 morts, 129 soit 75,4% étaient des morts à travers le traumatisme, tandis que 42 soit 24,6% étaient des morts non traumatismes. Trente soit 71,4% parmi les 42 avaient des informations complète pour l'analyse. Tranche d'âge était de 2 - 29 ans (moyen 42,7 ± 21,8 ans) comprend 18 du sexe masculin et 12 du sexe féminin. Des patients atteints de la péritonite généralisée étaient en majorité 8 soit 26,7% comprend 4 perforation typhoide, 2 appendicerupturé et 2 ulcère simple perforé. Des malignités terminales ont suivi de près avec 6 morts (20,0%). 3 à travers des causes urologiques, (2 prostatique et cancer de la vessie) saignant gastrointestinal aigu 3 soit 10%, obstruction intestinale 1 soit 3,3% et d'autres. Dix neuf patients soit 63,3% avaient visité l'hôpital précédamment avec un séjour < 48 heures (4 patients), 48 heures - 1 semaine (4 patients) et > 1 semaine (2 patients), sans documentation (9 patients). Moins de 40% de patients étaient capable de faire des investigations requisses (électrolyte, radiographie et ultrason) ou reçu des interventions désirées (sang et antibiotiques).
Conclusion: Des morts à travers non traumatisme constituent le quart des morts dans le services des urgences, péritonite généralisée et malignité grave étaient les conditions principales responsable et caractérisé par présentation tardive après avoir passé une longue moment dans un hôpital privé précédent.

Introduction

Deaths in the Accident and Emergency room are not uncommon occurrences. We have provided data on these both as preliminary reports[1] and as a fuller documentation[2]. Two major groups of deaths were identified in the A and E; those from trauma and non-trauma conditions. Whereas trauma deaths accounted for 75 % of A and E deaths, non-trauma deaths take up 25 % [2-5]. The pattern and distribution of trauma deaths mainly among victims of road traffic injury, falls and gunshot wounds who are in their third to fourth decades of life with urgent requirements of organized pre-hospital care necessary to present the patients in optimum physiologic state for treatment have been established in our

*Correspondence

environment[3-6]. Those of non-trauma victims present at variable age groups due to intraperitoneal sepsis and late malignancies where unsatisfactory inter-hospital referral system is implicated as some of the contributions to mortality. This study was done to report the different mechanism and circumstances of the non-trauma deaths using our hospital and range of clinical conditions seen.

Patients and methods

All patients admitted to the surgical section of the A and E ward of the University of Ilorin Teaching Hospital (UITH) Ilorin, Nigeria between September 1999 and December 2001 (excluding the period between September, 2000 and December, 2000 during which there was an industrial strike action by health workers in the country) had their data collected prospectively. Information obtained on the research register included name, age, sex, presenting diagnosis, prior hospital visit before presentation, the patient's outcome of care (if admitted, discharged, referred, or died). All the patients whose deaths were attributable to non-traumatic causes were extracted from this body of data and further analysed to show presenting clinical diagnoses, interval between onset of illness and presentation to the hospital. Data was also collected on the ancillary investigations requested and done as relevant to the diagnoses to determine the quality of care (full blood count, electrolytes and urea, plain radiographs and ultrasonography), cadre of attending surgeon or trainee(s) who saw the patients until death to determine the impact of expert opinion before death, duration of hospital stay to determine time available for care, and probable clinical cause of death (autopsies were not routinely done due to some socio-cultural and religious restrictions). The results are presented using simple tables and Microsoft Excel Software.

Result

Of the 4,164 patients that were seen in the surgical section of the A and E ward of UITH during the period under review, 1251 (30.0 %) of them were due to non-traumatic conditions. There were 171 deaths with 42 (24.6%) being due to non-traumatic causes. Thirty (71.4 %) of these 42 deaths had sufficient clinical information for further comprehensive analysis. **Table 1** shows the spectrum of non-trauma clinical presentations seen and the mortality in the 30 patients, while **Figure 1** shows the distribution of the patients by age.

The age range was 2- 95 years (mean 42.7 years, standard deviation 21.7), 18 males and 12 females (M: F= 1.5:1). Table 1 also shows the priority of clinical conditions reporting to the A and E. Patients with generalized peritonitis were in the majority 8 (26.7 %) comprising typhoid perforation 4, ruptured appendix 2 and perforated peptic ulcer 2. Malignancies of different parts of the body accounted for 6 deaths (20.0 %). Interestingly, 3 of these were in the urogenital tract- 2 cases of prostatic carcinoma and one case of advanced bladder carcinoma. The others were one case each of colonic tumour presenting with intestinal obstruction, pancreatic tumour and osteogenic sarcoma. There were 3 cases of acute gastrointestinal haemorrhage (2 upper and 1 lower) and one other death from a benign intestinal obstruction secondary

Table 1 Non-trauma surgical conditions

Serial Number	Clinical condition	Morbidity (% n = 1251)	Mortality (% n = 30)	
1.	Abscess (+ pyomyositis)	213 (17.0)	2 (6.7)	
2.	Urinary retention	132 (10.6)	1 (3.3)	renal failure
3.	Acute abdomen of unknown cause	117 (9.3)	2 (6.7)	perforated ulcer
4.	"Others"	111 (8.9)	4 (13.3)	unknown cause of death
5.	Appendicitis	101 (8.1)	2 (6.7)	(ruptured)
6.	"Tumours"	97 (7.8)	6 (20)	
7.	Intestinal obstruction	79 (6.3)	1 (3.3)	
8.	Hernia / scrotal conditions	56 (4.5)	-	
9.	Bleeding per rectum	51 (4.1)	1 (3.3)	
10.	Medical disease referred	39 (3.1)		
11.	Typhoid perforation	38 (3.0)	4 (13.3)	
12.	Foot infection (non-trauma)	30 (2.4)	1 (3.3)	(tetanus)
13.	Osteomylitis	25 (2.0)	1 (3.3)	septicaemia
14.	Testicular torsion/epididymoorchitis	24 (1.9)	-	
15.	Extremity gangrene (non-traumatic)	23 (1.8)	1 (3.3)	
16.	Epistaxis/ENT diseases	22 (1.8)	1 (3.3)	
17.	Osteoarthritis	22 (1.8)	-	
18.	Hand infection (non-traumatic)	20 (1.6)	-	
19.	Post-operative complications	16 (1.3)	1 (3.3)	
20.	Neck/back pain	13 (1.0)	-	
21.	Oesophageal disease	12 (1.0)	-	
22.	Haematemesis	10 (0.8)	2 (6.7)	
	Total	1251	30	

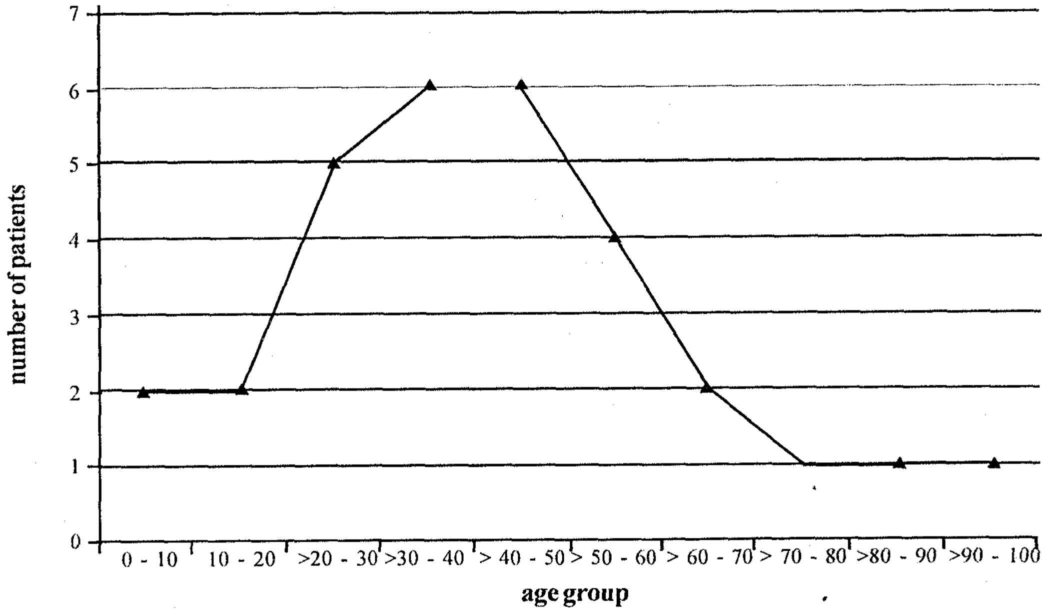

Fig. 1 *Distribution of non-trauma surgical deaths*

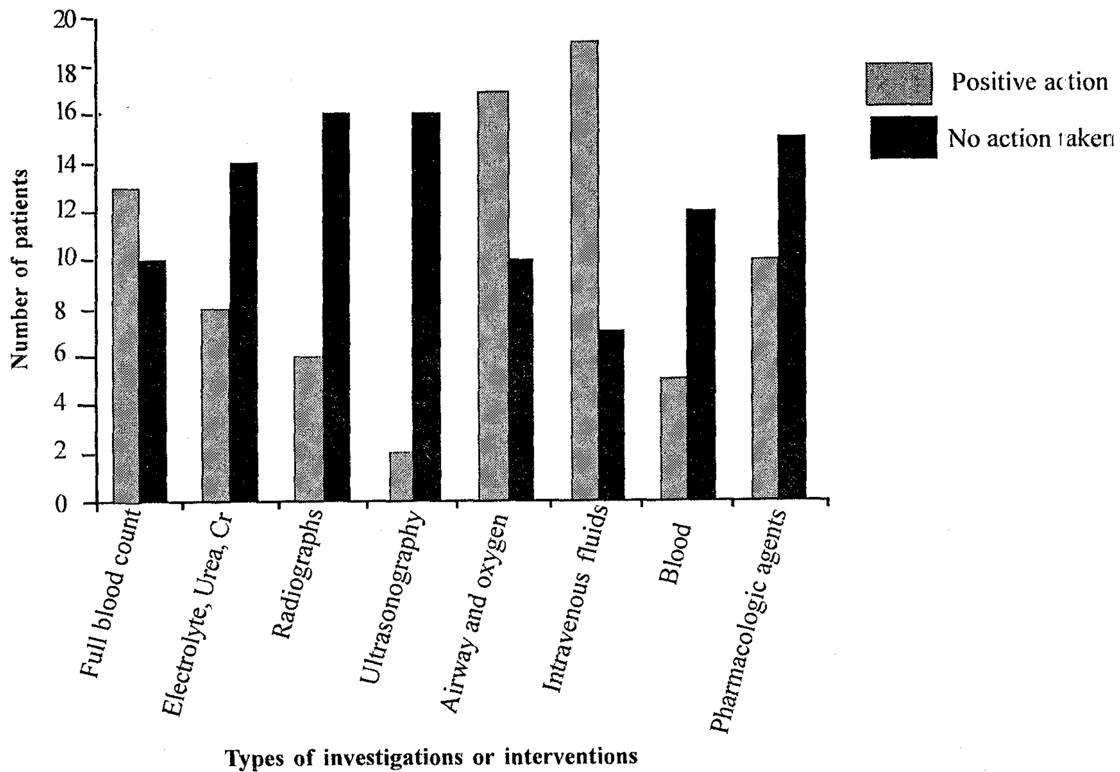

Fig. 2 *Showing investigations and interventions on the patients before death*

to adhesions. There were four deaths in which the diagnosis could not be ascertained. This was due to the rapidity of death before full clinical assessment could be done by the surgical registrar.

Concerning the cadre of medical staff that reviewed the patients on admission at the A and E, it was found that a registrar(surgical trainee yet to pass the Part I examinations of the West African College of Surgeons or the Nigerian Postgraduate Medical College) alone reviewed 21 patients (70.0 %) without the benefit of senior opinion. Seven patients were availed of the full complement of medical staff, having being reviewed by a registrar, senior registrar and a

consultant. In 2 deaths, the cadre of doctors that reviewed the patients was not specified.

Some 19 patients (63.3%) had been to one private hospital where treatment had been received prior to presentation in UITH. Only one patient of the 30 was ascertained definitively not to have been to another hospital. In 9 patients, it was not specified if there had been any prior hospital visits before presentation.

Of the 19 patients that had previously visited private hospitals, the duration of stay in these hospitals could not be ascertained in 9 patients. In the remaining 10 patients, 4 had spent less than 48 hours, another 4 spent between 48 hours and a week, while 2 spent more than one week prior to presentation.

Within the UITH A and E, 8 (26.6%) of the dead patients spent less than 6 hours, while 16 (53.2%) patients spent between 6- 48 hours and 5 (16.6%) patients spent more than 48 hours in the hospital. Duration of hospital stay of one patient could not be ascertained from the records. The various investigations requested for the patients included full blood count (FBC), packed cell volume (PCV), electrolyte, urea and creatinine (E/U/Cr), radiographs and ultrasonography (USS). Of course, the peculiarity of each condition dictated the particular investigations done. Figure 2 shows the proportion of interventions intended and those who successfully had them and those who did not.

Discussion

This study has shown the spectrum of non-trauma surgical morbidity and mortality. Four conditions (acute abdomen of unknown cause, acute appendicitis, acute intestinal obstruction and typhoid perforation) representing non-trauma acute abdomen would account for the highest priority in the A and E as they were responsible for 335 patients (26.8 % of 1251) and 9 (30 %) of the 30 deaths (Table 1) Abscesses, urinary retention, advanced tumours and upper gastrointestinal bleeding were the next priorities (Table 1). Laboratory investigations (FBC, E/U/Cr, USS) and the blood bank became difficult in more than 60 % of the patients (Figure 2) on account of poor finances.

This study also reveals some other findings similar to trauma deaths. There is male preponderance as for trauma. The age group (Figure 1) is mostly among the income-generating 20-50 years age group as in trauma, too. Whether this is related to the shorter life expectancy in Nigeria (52 years in both males and females)[7], the near-absence of such infective conditions in the developed countries has made comparison difficult unlike in trauma which is worldwide. Many researchers[8-11] have documented the measures to take in respect of typhoid perforation to reduce to the barest minimum its morbidity and mortality.

One of the factors identified for poor clinical work in the A and E was the level of competence of the attending surgical trainee who alone saw about 70 % of the patients whereas full complement of staff (from registrar to consultant) saw 23.3 % of the deaths. The contribution of this is difficult to prove but questions are already being raised at least in the United Kingdom for higher cadre of staff to man the emergency trauma facilities because a study revealed 8% consultant review rate of trauma emergency patients[12].

The limitations of this study are as for retrospective analysis where poor documentation and missing data ensured only 71 % of the patients were fit for analysis. Even though quite representative, there is need to prospectively study the issues raised in this paper to ascertain greater accuracy from a study longer than two years that would generate a greater number of patients. However, the pattern of non-trauma deaths as shown is this paper should broaden the narrow statistics available on this subject.

Acknowledgements

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Prognostic indices in childhood heart failure

***S. I. Omokhodion and I. A. Lagunju**
**Department of Paediatrics, University College Hospital, Ibadan, Nigeria.*

Summary
Objectives: **To evaluate the short term prognosis of childhood heart failure and highlight the factors that affect outcome among cases of heart failure admitted into the paediatric wards, University College Hospital, Ibadan.**
Background: **Childhood heart failure remains a major cause of morbidity and mortality in the developing world. The advent of open heart surgery, use of better myocardial preservative techniques, and the introduction of newer, more effective drugs in the treatment of heart failure have greatly improved the outcome of children with heart failure in the developed world. The outlook of such children in the developing world however remains poor.**
Methods: **One hundred consecutive cases of heart failure admitted into the Paediatric wards of the University College Hospital, Ibadan with a diagnosis of heart failure over a 10-month period were studied prospectively. Diagnosis of heart failure was based on the presence of at least three of the four cardinal signs of heart failure: tachypnoea, tachycardia, tender hepatomegaly and cardiomegaly. All cases were followed up daily till a definite outcome was determined.**
Results: **The predominant underlying causes of heart failure were acute respiratory infections (36%), severe anaemia (28%), and congenital heart disease (25%). There was a case-fatality rate of 24% among the study population. Poor prognostic indices identified were age below one year or above 5years, presence of underlying acute respiratory infections, rheumatic heart disease and renal disorders.**
Conclusion: **Heart failure in Nigerian children though mostly due to preventable causes, are associated with an unacceptably high mortality.**

Key-words: ***Prognosis, Heart failure, Childhood***

Résumé
Objectifs: Evaluer le prognostic à court terme du cardiaque d'enfance et souligner des facteurs qui touchent le résultat parmi les cas des cardiaques admis dans la salle d'hôpital pédiatrique, collège hospitalier universitaire, Ibadan.
Introduction: Le cardiaque d'enfance demeure une cause principale de la morbidité et mortalité dans les pays en voie de développement. L'avenement de la chirurgie à coeur ouvert, l'utilisation de meilleurs techniques du préservateurs du myocarde, et l'arrivée de nouveau et des médicaments plus efficace dans la prise en charge du cardiaque sont fortement amélioré le résultat chez des enfants atteints du cardiaque dans les pays développés malheureusement, le cas des enfants pareils dans les pays en voie de développement demeure mauvais.
Méthodes: Cent cas consécutifs des cardiaques admis dans la salle d'hôpital pédiatrique du Collège hospitalier Universitaire, Ibadan avec un diagnostic du cardiaque au cours d'une période de 10 mois ont été étudié en perspective. Le diagnostic du cardiaque était fondé sur la présence du moins, trois des quatre signes principaux du cardiaque: tachypnée, tachycardie, hépatomégalie tendre et cardiomégalie. Tous les cas ont été suivi chaque jour jusqu' au moment ou on a pu décider un résultat bien arrêté.
Résultats: Les causes de base prédominantes du cardiaque étaient infections respiratoire intense 36%, anémie grave 28%, et maladie congénitale du coeur 25%. Il y avait un taux de cas fatalité de 24% parmi la population d'étude. Signes prognostiques mauvais identifiés étaient âges moins d'un an ou plus de 5 ans, présence des infections respiratoire grave de base, rhumatismal maladie du coeur et troubles rénaux.
Conclusion: Le cardiaque chez des enfants nigérians quoiqu'il soit principalement attribuable aux causes évitables sont liés à un niveau de la mortalité inadmissible.

Introduction

Heart failure remains a major cause of childhood morbidity and mortality in Nigeria.[1] Prior to the advent of open heart surgery , use of better myocardial preservative techniques, and the introduction of newer , more effective drugs in the treatment of heart failure, mortality rates recorded from childhood heart failure was as high as 50-80%, even in the developed countries.[2,3] Early surgical correction has been shown to improve prognosis in children with congenital heart disease .[4,5] However, the prognosis remains poor in patients with left heart obstructive lesions, despite the recent advances in the medical and surgical management of cardiac defects.[7] Heart failure in patients with cardiomyopathies generally has a poor prognosis, even in the developed world[8-10], but the introduction of newer drugs in the medical management of heart failure has in recent years been found to prolong survival in patients with idiopathic dilated cardiomyopathy.[11] On the whole, improvement in living standard , advances in medical and surgical management of affected children have all led to a tremendous reduction in morbidity and mortality from this disease in the developed world.[12]

About two-thirds of the cases of heart failure in Nigerian children result from preventable causes such as bronchopneumonia, severe anaemia and rheumatic heart disease.[1,13-15] This study was undertaken to evaluate the factors affecting prognosis among Nigerian children presenting with cardiac failure.

Materials and methods

The study was prospective. All consecutive cases of heart failure aged 12 years and below, admitted into the Paediatric wards of the University College Hospital (UCH), Ibadan, over a ten-month period, August 2000 –May 2001, were recruited into the study.

The diagnosis of heart failure was based on the presence of three or all of the cardinal signs of heart failure in childhood, namely, tachypnoea, tachycardia, tender hepatomegaly and

**Correspondence*

cardiomegaly.

The name, age, sex, and the history of the illness were documented. Thorough physical examinations were carried out on admission and daily. Packed cell volume estimation and chest radiographs were undertaken in all patients. Other relevant investigations such as electrocardiography, echocardiography, anti-streptolysin O titre and erythrocyte sedimentation rate estimation, throat swab culture were also carried out as required. All the patients were followed up until a definite outcome was determined.

Results

A total of one hundred patients were admitted with a diagnosis of heart failure during the study period. There were 54 males and 46 females, giving a male/female ratio of 1.2:1. The underlying causes of heart failure were acute lower respiratory infections in 36 (36%) patients, severe anaemia in 28 (28%), congenital heart disease in 25 (25%) patients, acquired heart disease in 6 (6%), renal disorder in 3 (3%) patients and septicaemia in 2 (2%) patients. Infants constituted 56% of the study population, with two neonates inclusive. Twenty eight (28%) were aged 1-5 years while sixteen (16%)
were between the ages of 5 and 12 years. Table 1 shows aetiology of heart failure in the various age groups.

The duration of heart failure in the group of 100 children studied ranged from one to thirty four days, median 3days. The mean duration of heart failure was shortest in patients with severe anaemia, acute respiratory infections (ARI) and septicaemia, while it was longest in patients with structural heart defects and renal disorders.

There was a statistically significant difference in the mean duration of heart failure in the various aetiological groups (Krustal – Wallis H = 3.74, P < 0.001).

Table 1 Aetiology of heart failure in the different age groups

Diagnosis	Neonate (n=2) %	1 - 12 Mo (n=54)%	1 - 5yrs (n=28)%	>5 - 12 yrs (n=16)%
ARI	0.0 (0)	48.0 (26)	35.7(10)	0.0 (0)
Severe anaemia	50.0 (0)	15.0 (8)	50.0(14)	31.2 (5)
CHD	50.0 (1)	37.0 (15)	10.7 (4)	6.3 (1)
RHD	0.0 (0)	0.0 (0)	0.0 (0)	37.5 (6)
Renal disorders	0.0 (0)	0.0 (0)	0.0 (0)	18.7 (3)
Septicaemia	0.0 (0)	0.0 (0)	3.6 (1)	6.3 (1)
Total	100.0	100.0	100.0	100.0

Table 2 Mortality from heart failure in the different age groups

Age group	No with HF	No. Dead/ (%) Mortality
Neonates	2	2 (100.0)
1 - 12 months	54	13 (24.0)
> 1 - 15 years	28	4 (14.0)
> 5 years	16	5 (31.0)

HF = Heart failure
(Percentage mortality in parentesis)

Table 3 Mortality from heart failure in various aetiological groups

Aetiology	No of Patients	No. Dead/ (%) Mortality
Septicaemia	2	2 (0.0)
Severe anaemia	28	4 (14.2)
CHD	25	4 (16.0)
ARI	36	11 (30.6)
AHD	6	2 (33.3)
Renal disorders	3	3 (100.0)

CHD - Congenital Heart Disease
AHD - Acquired Heart Disease
ARI - Acute Respiratory Infections

Seventy six (76%) patients were discharged home. Of these were 25 (32.9%) patients with structural heart defects and all of them remained dependent on the use of oral diuretics with or without digoxin for the control of heart failure. All the other 51(67.1%) patients had complete resolution of heart failure and did not require further medication as at the time of discharge.

Twenty four (24%) of the patients died giving a case fatality rate of 24%. The two neonates in the study died, giving a fatality rate of 100% in this age group. Mortality was lowest in the preschool (1-5years) age group, 14% of them died. Thirty one percent of the older children (aged > 5years) and 24% of the infants died. There was a statistically significant difference in mortality from heart failure in the different age groups ($\chi^2 = 8.24$, $\delta_f = 3$, $p = 0.0411$). Table 2 shows the mortality from heart failure in the different age groups.

Mortality from heart failure in the various aetiological groups is shown in Table 3.The highest mortality was recorded in the group of patients with renal disorders, all the three patients died giving a case fatality rate of 100%. Mortality rates of 33% and 31% were found in patients with rheumatic heart disease and acute lower respiratory tract infections respectively. Lower mortality rates were found in patients with severe anaemia (14%) and congenital heart disease (16%). None of the patients with heart failure secondary to

septicaemia died.

There was no statistically significant difference in the mean duration of illness before presentation between the patients that died and those that survived (Mann-Whitney $U = 816.5$, $p = 0.63$). Late presentation to the hospital was a common finding amongst all the patients. The mean (± SD) duration of symptoms prior to presentation was 37.2 ± 101 days in the 76 patients that survived, and 41.3 ± 129.7 days in the 24 patients that died.

There was a greater than two fold increased risk of mortality from heart failure when compared with mortality from other causes of admission without heart failure during the study period. This difference was statistically significant ($\chi^2 = 15.897, \delta_f = 1, p < 0.001$)

Discussion

Heart failure in children in the developing countries has been shown to be associated with considerable morbidity and mortality.[13-15] The leading causes of heart failure in these areas are preventable causes such as bronchopneumonia, severe anaemia and rheumatic heart disease.[1,13-15]

The study recorded a case fatality rate of 24% amongst the children with heart failure. This was lower than the figures previously reported from this centre.[13] It is however noteworthy that, children who had their illnesses complicated by heart failure had a greater than two fold increased risk of mortality. The presence of heart failure thus worsens the prognosis of the primary illness.

Late presentation was a common finding in the group of patients studied. However, there was no statistically significant difference in the mean duration of illness before presentation between the patients with a fatal outcome and those who survived.

Age was found to be an important prognostic factor with increased mortality associated with heart failure in the neonatal period, infancy and the older age group, i.e. above the age of 5 years. The high mortality observed in the neonatal period can be attributed to the fact that the majority of congenital cardiac defects that present in the neonatal period tend to be the severe forms, e.g. obstructive left sided cardiac defects, transposition of the great arteries, while the less severe forms like ventricular septal defects, patent ductus arteriosus present later in infancy.[16,17] The infant heart has also been shown to be less compliant than the adult.[18] Infants also have a high resting cardiac output which limits diastolic reserve. The combined effects of these are an increased susceptibility to and as well as an increased mortality from heart failure in infancy.[18]

The higher mortality in infancy and the older age group can also be related to the aetiology of heart failure in these age groups. The study showed a higher mortality in patients with acute respiratory infections, rheumatic heart disease and renal disorders. Peak incidence of acute respiratory infections is seen in infancy and 72.2% of the patients with heart failure secondary to ARI in the study were infants. Johnson et al[15] and Fagbule and Adedoyin[16] also reported mortality rates of 50% and 20% respectively in patients with cardiac failure secondary to ARI in Ibadan and Ilorin.

Rheumatic heart disease, another cause of heart failure associated with increased mortality is a disease of the older age group, usually seen above the age of 5 years. Previous studies in Africa have documented the fact that most cases of rheumatic carditis present at the advanced stages of the disease and in chronic heart failure, leading to increased mortality.[19,20] The late presentation has been attributed to the problems of poverty, ignorance, lack of easy access to medical care, and poor cultural beliefs and practices. The increased mortality seen in the age groups highlighted may therefore also be a function of the underlying causes and the conditions responsible for heart failure in these age groups.

Mortality amongst patients with severe anaemia was 14% in the study. Mortality/survival in patients with anaemic heart failure depends mainly on the prompt availability of donor blood for transfusion. A previous study at the same centre recorded a mortality rate of 25% amongst patients with anaemic heart failure and one-third of the cases that died succumbed to the illness. The improved survival in this study can thus be partly attributed to the prompt availability of donor blood for transfusion as all the patients with anaemic heart failure received blood within the first two hours of admission.

The mean duration of heart failure was longest in patients with congenital heart defects, rheumatic heart disease and renal disorders. Even though, a relatively lower mortality (16%) was recorded amongst the patients with congenital heart disease, the mean duration of heart failure was longer in these patients. All of them remained dependent on the use of anti-failure medications – oral diuretics with or without digoxin. Congenital heart disease was thus associated with prolonged morbidity in the affected children. Early surgical intervention has been shown to reduce morbidity and mortality in infants with congenital heart disease.[12,21]

Heart failure in Nigerian children though mostly due to preventable causes, are associated with an unacceptably high mortality. Poor prognostic indices include heart failure in infancy and the older age group, presence of underlying acute respiratory infections, rheumatic heart disease and renal disorders.

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One inhalation (50 mcg salmeterol and 250 mcg fluticasone propionate) twice daily.or
One inhalation (50 mcg salmeterol and 500 mcg fluticasone propionate) twice daily.
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The management of ROAD should normally follow a stepwise programme and patient response should be monitored clinically and by lung function tests. SERETIDE Accuhaler/Diskus is not for relief of acute symptoms for which a fast and short-acting bronchodilator (e.g. salbutamol) is required. Patients should be advised to have their relief medication available at all times. Increasing use of short-acting bronchodilators to relieve symptoms indicates deterioration of control and patients should be reviewed by a physician. Sudden and progressive deterioration in control of asthma is potentially life-threatening and the patient should be reviewed by a physician. Consideration should be given to increasing corticosteroid therapy. Also, where the current dosage of SERETIDE has failed to give adequate control of ROAD, the patient should be reviewed by a physician. For patients with asthma or COPD, consideration should be given to additional corticosteroid therapies and administration of antibiotics if an exacerbation is associated with infection. Treatment with SERETIDE should not be stopped abruptly in patients with asthma due to risk of exacerbation, therapy should be titrated-down under physician supervision. For patients with COPD cessation of therapy may be associated with symptomatic decompensation and should be supervised by a physician. As with all inhaled medication containing corticosteroids, SERETIDE should be administered with caution in patients with active or quiescent pulmonary tuberculosis. SERETIDE should be administered with caution in patients with thyrotoxicosis. Systemic effects may occur with any inhaled corticosteroid, particularly at high doses prescribed for long periods; these effects are much less likely to occur than with oral corticosteroids (see Overdose). Possible systemic effects include Cushing's syndrome, Cushingoid features, adrenal suppression, growth retardation in children and adolescents, decrease in bone mineral density, cataract and glaucoma. It is important, therefore for ROAD patients, that the dose of inhaled corticosteroid is titrated to the lowest dose at which effective control is maintained. The possibility of impaired adrenal response should always be borne in mind in emergency and elective situations likely to produce stress and appropriate corticosteroid treatment considered (see Overdose). It is recommended that the height of children receiving prolonged treatment with inhaled corticosteroid is regularly monitored. Certain individuals can show greater susceptibility to the effects of inhaled corticosteroid than do most patients. Because of the possibility of impaired adrenal response, patients transferring from oral steroid therapy to inhaled fluticasone propionate therapy should be treated with special care, and adrenocortical function regularly monitored. Following introduction of inhaled fluticasone propionate, withdrawal of systemic therapy should be gradual and patients encouraged to carry a steroid warning card indicating the possible need for additional therapy in times of stress. There have been very rare reports of increases in blood glucose levels (see Adverse Reactions) and this should be considered when prescribing to patients with a history of diabetes mellitus. A drug interaction study in healthy subjects has shown that ritonavir (a highly potent cytochrome P450 3A4 inhibitor) can greatly increase fluticasone propionate plasma concentrations, resulting in markedly reduced serum cortisol concentrations. During post-marketing use, there have been reports of clinically significant drug interactions in patients receiving fluticasone propionate and ritonavir, resulting in systemic corticosteroid effects including Cushing's syndrome and adrenal suppression. Therefore, concomitant use of fluticasone propionate and ritonavir should be avoided, unless the potential benefit to the patient outweighs the risk of systemic corticosteroid side-effects.
Interactions:
Both non-selective and selective beta-blockers should be avoided unless there are compelling reasons for their use.Under normal circumstances, low plasma concentrations of fluticasone propionate are achieved after inhaled dosing, due to extensive first pass metabolism and high systemic clearance mediated by cytochrome P450 3A4 in the gut and liver. Hence,clinically significant drug interactions mediated by fluticasone propionate are unlikely.A drug interaction study in healthy subjects has shown that ritonavir (a highly potent cytochrome P450 3AF inhibitor) can greatly increase fluticasone propionate plasma concentrations, resulting in markedly reduced serum cortisol concentrations. During post-marketing use, there have been reports of clinically significant drug interactions in patients receiving fluticasone propionate and ritonavir, resulting in systemic corticosteroid effects including Cushing's syndrome and adrenal suppression. Therefore, concomitant use of fluticasone propionate and ritonavir should be avoided, unless the potential benefit to the patient outweighs the risk of systemic corticosteroid side-effects.Studies have shown that other inhibitors of cytochrome P450 3A4 produce negligible (erythromycin) and minor (ketoconazole) increases in systemic exposure to fluticasone propionate without notable reductions in serum cortisol concentrations. Nevertheless, care is advised when co-administering potent cytochrome P450 3A4 inhibitors (e.g. ketoconazole) as there is potential for increased systemic exposure to fluticasone propionate.
Effects on Ability to Drive and Use Machines:
There have been no specific studies of the effect of SERETIDE on the above activities, but the pharmacology of both drugs does not indicate any effect.
Pregnancy and lactation:
Administration of drugs during pregnancy and lactation should only be considered if the expected benefit to the mother is greater than any possible risk to the foetus or child.
Adverse Reactions:
As SERETIDE contains salmeterol and fluticasone propionate, the type and severity of adverse reactions associated with each of the compounds may be expected. There is no incidence of additional adverse events following concurrent administration of the two compounds. As with other inhalation therapy paradoxical bronchospasm may occur with an immediate increase in wheezing after dosing. This should be treated immediately with a fast and short-acting inhaled bronchodilator. Salmeterol/fluticasone propionate Diskus should be discontinued immediately, the patient assessed and alternative therapy instituted if necessary. Adverse events which have been associated with salmeterol include tremor, subjective palpitations and headache, but these tend to be transient and reduce with regular therapy. Cardiac arrhythmias (including atrial fibrillation, supraventricular tachycardia and extrasystoles) may occur, usually in susceptible patients. There have been reports of arthralgia and hypersensitivity reactions, including rash, oedema, angioedema, oropharyngeal irritation, rare reports of muscle cramps and very rare reports of hyperglycaemia. Fluticasone propionate include hoarseness and candidiasis (thrush) of the mouth and throat can occur in some patients. There have been uncommon reports of cutaneous hypersensitivity reactions. There have also been rare reports of hypersensitivity reactions manifesting as angioedema (mainly facial and oropharyngeal oedema), respiratory symptoms (dyspnoea and/or bronchospasm) and very rarely, anaphylactic reactions. Possible systemic effects include Cushing's syndrome, Cushingoid features, adrenal suppression, growth retardation in children and adolescents, decrease in bone mineral density, cataract and glaucoma (see Warnings and Precautions). There have been very rare reports of hyperglycaemia. There have been very rare reports of anxiety, sleep disorders and behavioural changes, including hyperactivity and irritability (predominantly in children). Salmeterol/fluticasone propionate clinical trials:- undesirable effects commonly reported included hoarseness/dysphonia, throat irritation, headache, candidiasis of mouth and throat and palpitations. Salmeterol/fluticasone proprionate postmarketing:- There have been uncommon reports of cutaneous hypersensitivity reactions. There have also been rare reports of hypersensitivity reactions manifesting as angioedema (mainly facial and oropharyngeal oedema), respiratory symptoms (dyspnoea and/or bronchospasm) and very rarely, anaphylactic reactions. There have been very rare reports of anxiety, sleep disorders and behavioural changes, including hyperactivity and irritability (predominantly in children) and hyperglycaemia.
Overdosage:
If higher than approved doses of SERETIDE are continued over prolonged periods, significant adrenocortical suppression is possible. There have been very rare reports of acute adrenal crisis, mainly occurring in children exposed to higher than approved doses over prolonged periods (several months or years); observed features have included hypoglycaemia associated with decreased consciousness and/or convulsions.
Special Precautions for Storage:
Do not store above 30°C

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Grandeur

Age estimation of Malawian adults from dental radiographs

* P. S. Igbigbi and Saulos K. Nyirenda
Department of Anatomy, College of Medicine, University of Malawi, P M. B. 360, Chichiri, Blantyre 3, Malawi
E-mail: pigbigbi@yahoo.com

Summary

Background: **Previous studies have shown that with advancing age the size of the dental pulp cavity is reduced as a result of secondary dentine deposit, so that measurements of this reduction can be used as an indicator of age. Age estimation is one of the indicators used in forensic identification and teeth are biological markers for human age estimation.**

Methodology: **We measured the height (mm) of the crown (CH = Coronal Height) and the height (mm) of the coronal pulp cavity (CPCH = Coronal pulp cavity height) of premolars and molars of 134 adult Malawians (77 males, 57 females) aged 20 – 80 years from dental radiographs. The Tooth-Coronal Index (TCI) was computed for each tooth and regressed on real age.**

Result: **The correlation coefficients ranged from r – 0.650 to – 0.799 and were significant in both gender, in premolars and molars ($P < 0.01$). The equations obtained allowed estimation of age with an error of ±5 years in our studied population, the molar equation estimated age better for males while the premolar equation was for female and combined samples. The percentage accuracy levels of our sample population were higher than Caucasians previously reported using similar methods.**

Conclusion: **Our study demonstrates the potential value of this method of age estimation which is precise, simple, non invasive and applicable to both living individuals and skeletal materials of unknown age.**

Key -words: ***Teeth, Age estimation, Dental radiographs, Malawians.***

Résumé

Introduction: Des études précédentes avaient montré qu'avec des développements la dimension de la cavité du pulpe dentaire est en baisse à la suite du précipite dentine secondaire, pour pouvoir utiliser les mesurage de cette réduction comme un indicateur d'âge. Estimation d'âge est l'un des indicateurs utilisés dans l'identication légale et les dents sont des marqueurs biologique pour décider l'âge de l'homme.

Méthodology: Nous avons mesuré la heuteur (mm) de la couro nne (HC = Hauteur coronaire) et la heuteur (mm) de la cavité du pulpe coronaire (HCPC = heuteur de la cavité du pulpe coronaire) du. Prémolaire et molaire des 134 adultes malawians (77 du sexe masculin, 57 du sexe féminin âgé de 20 - 80 ans de la radiographie dentaire. L'index du dent coronaire (IDC) était calculé pour chaque dent et regressé sur le vrai âge.

Résultat: Le coefficient de la corrélation aller de r - 0,650 à - 0,799 et etaient important chez les deux genres, dans les prémolaires et molaires ($P < 0.01$). L'équation obtenue a tenu compte d'estimation d'âge avec une erreur de ± 5 ans dans notre population étudiée, l'équation molaire avait évalué l'âge mieux pour le sexe masculin tandis que équation molaire était pour le sexe féminin et echantillons combinés le taux du pourcentage d'exactitude de notre échantillon de la population était élevé plus que caucasians rapportés précédemment à travers l'utilisation de la même méthode.

Conclusion: Notre étude a indiqué la valeur potentielle de cette méthode d'évaluation d'âge qui est exact, simple, non invasif et applicable au deux individus vivants et matériel squelettique d'âge inconnu. Nous recommendons cette méthode pour les pays en voie de développement.

Introduction

Age estimation is one of several indicators employed to establish identity in forensic cases and teeth are very often used as biological markers for human age determination. Age estimation from teeth is frequently used, because they may be preserved long after all other tissues including bones have disintegrated. Similarly, unlike bones they can also be inspected directly in living individuals. Such estimations of living individuals are made for refugees or other persons who arrive in a country without acceptable identification papers and may require a verification of age, in order to be entitled to civil rights and/or social benefits in present-day society. Furthermore, in archeological research, estimation of age at death for skeletal remains was a technique employed in describing palaeodemology of populations[1]. It may also be used in studies of archeological material for identification of an unknown dead body.

Several methods of age estimation using teeth are available [2-6] with the most widely applied being rather time-consuming and in many cases, requiring sophisticated laboratory equipment for preparing longitudinal sections. Other methods based on the dynamics of the tooth eruption process are limited to the short period of odontogenesis [7-11].

The least known but easily applied method of age estimation is based on secondary dentin deposition clearly seen on dental radiographs since with advancing age the size of the dental pulp cavity is reduced as a sequence of secondary dentin concrements [6, 12]. Despite the fact that this method has received little attention in research, the height of the coronal pulp cavity has been shown to have a significant correlation with chronological age [4, 12-14]. This correlation was shown to be especially high for female and male molars, ranging from – 0.87 to – 0.92 respectively [14].

Some dental age estimation methods, which are frequently used, require tooth extraction while others require preparation of microscopic sections of at least one tooth [15-17]. Because these methods are time-consuming, expensive sometimes and

*Correspondence

destructive, they may be unacceptable for ethical, religious, cultural or scientific reasons. Furthermore, a study has shown that age estimation based on the Tooth Coronal Index (TCI) method is at least as precise as most of these widely applied and acknowledged procedures [18]. This method is based on the relationship between age and the pulp size on periapical dental radiographs. It is used often in many dental surgeries, is non-destructive and information is easy to obtain.

This study was therefore carried out on adult Malawian subjects using the tooth coronal index (TCI) method because of its simplicity, non-invasiveness and reliability in age estimation.

Materials and methods

Full mouth dental radiographs (Orthopantomographic) were collected from the records of Queen Elizabeth Central, Blantyre Adventist Hospitals, Wendo and Shalom Dental Clinics all situated in Blantyre City. The radiographs were from134 individuals (77 males, 57 females), with ages ranging from 20 – 80 years and a mean age of 33 years.

A preliminary study on radiographs from 20 individuals showed that measurements from mandibular second premolars and molars were most strongly correlated with age, so these teeth were selected for the investigation. Furthermore, a paired t-test on these measurements showed that there were no significant differences between teeth from the left and the right side of the jaw. Consequently, in this study teeth from either the left or the right side were chosen, whichever were best suited for measurement. Teeth, which were impacted, had vestibular radio-opaque fillings, crowns, pathological processes in the apical bone visible on the radiographs or had already been root-filled were discarded.

Using a digital caliper to the nearest 0.01mm, two observers independently took the following measurements (in millimeters) on the radiographs with fully visible pulp cavity: Height of the crown (CH) and height of the coronal pulp cavity (CPCH) (Fig 1). A straight line traced between the cemento-enamel junction is the division between the anatomical crown and root. The crown height was measured vertically from the cervical line to the tip of the highest cusp according to Moss et al., [19]. The coronal pulp cavity height was measured vertically from the cervical line to the tip of the highest pulp horn after Ikedia et al., [13]. Since dental wear influences the crown length, teeth with marked degrees of attrition (i.e. from stage 5 to stage 8) after Smith [20] were excluded from the study. The focus-film distance of the radiographs was 90cm (36 inches). All the measurements were carried out twice by the two individuals and the mean recorded to minimize intra and inter observer errors.

Using the mean of the measurements of two observers, the tooth-coronal index (TCI) for each tooth was then calculated as follows: $TCI = CPCH \times \frac{100}{CH}$

The teeth were divided into premolar and molar for statistical analysis. Simple linear regression using the Microsoft Excel Package for Windows 2000 was carried out by regressing the Tooth-Coronal Index (TCI) against actual age for each group of teeth for males and females and for the combined sample.

This use of an index instead of absolute measurement excludes possible errors resulting from different scales of X-ray photos [14, 21, 22]. To test for reproducibility of the measurements, they were repeated on the radiographs from ten individuals by both observers, then age predicting equations for Malawians were calculated using linear regression analysis. The success of these equations was analysed based on the percentage accuracy achieved from the estimated ages.

Results

Table 1 shows the age and gender distribution of the studied population. The mean age and standard deviation (SD) in years for males was 33.77 ± 13.10 while for females it was 31.93 ± 14.10. Similarly, the mean age and SD for both gender was 33.00 ± 13.85.

Table 2 shows the Tooth-Coronal Index (TCI) and gender distribution of the studied population with respect to the premolars and molars. Generally the mean TCI for molars were lower than those of premolars in both gender separately and when combined.

Table 3 shows the correlation coefficients between age and TCI by gender and tooth type. The correlations were significant in both gender and in premolars and molars (r – 0.650 to – 0.799; P < 0.01).

Table 1 Age and gender distribution of the Malawian population

Gender	Age range Years	Mean age ± standard deviation SD (years)
Male (M)	20 - 79	33.7 ± 13.10
Female (F)	20 - 80	31.93 ± 14.10
Male + Female (M + F)	20 - 80	33.00 ± 13.85

Table 2 Tooth-Coronal Index (TCI) and gender distribution of the Malawian population

Gender	TCI Range	Mean TCI ± SD
	Premolars	
Male (M)	05.63 - 47.83	28.18 ± 09.19
Female (F)	09.57 - 45.07	28.85 ± 07.93
Male + Female (M + F)	05.63 - 47.83	28.85 ± 08.67
	Molars	
Male (M)	06.11 - 37.75	24.39 ± 05.52
Female (F)	07.91 - 41.73	26.06 ± 07.85
Male and Females (M+F)	06.11 - 41.73	25.10 ± 07.79

The regression equations for premolars were as follows:

$Y = 66.04 - 1.145X$ male
$Y = 67.71 - 1.230X$ female
$Y = 66.89 - 1.175X$ combined sample

While for molars it was:

$Y = 68.38 - 1.419X$ male
$Y = 61.56 - 1.168X$ female
$Y = 65.82 - 1.308X$ combined sample

X represents values of TCI for premolars and molars

Table 3 Correlation coefficients between age and TCI (r) by gender and tooth type

Gender	r	t-value	df	P-value	Significance
		Premolar			
Male (M)	-0.767	-10.336	75	<0.01	s
Female (F)	-0.691	-7.091	55	<0.01	s
Male and female (M + F)	-0.735	-12.465	132	<0.01	s
		Molars			
Male (M)	-0.799	-11.515	75	<0.01	s
Female (M)	-0.650	-6.341	55	<0.01	s
Male and female (M + F)	-0.735	-12.469	132	<0.01	s

Table 4 Equation predicting age (Y) from the TCI method by gender and tooth type

Gender	n	SE	r	Prediction equation
		Premolars		
Male (M)	77	-09.15	-0.767	Y = 66.04 - 1.145X
Female (F)	57	-10.62	-0.691	Y = 67.71 - 1.230X
Male and female (M + F)	134	09.62	-0.735	Y = 66.89 - 1.175X
		Molars		
Male (M)	77	-08.62	-0.799	Y = 68.38 - 1.419X
Female (M)	57	-11.23	-0.650	Y = 61.56 - 1.168X
Male and female (M + F)	134	-09.64	-0.735	Y = 65.82 - 1.308X

X = TCI value

Table 5 Percentage in accuracy levels in age prediction testing equations from the TCI method

Gender	n	% in accuracy levels ± 5 years
	Premolars	
Male (M)	77	49.35
Female (F)	57	40.35
Male and female (M + F)	134	47.76
	Molars	
Male (M)	77	53.25
Female (F)	57	28.07
Male and female (M + F)	134	37.31

Table 6 Comparison of percentage in accuracy levels ± 5 years between Caucasian⁺ and Malawian populations

Gender	Caucasians⁺	Malawians
	Premolars	
Male (M)	41.67	49.35
Female (F)	35.48	40.35
Male and female (M + F)	40.91	47.76
	Molars	
Male (M)	34.06	53.25
Female (F)	22.54	28.07
Male and female (M + F)	30.43	37.31

+ Zadzinska et al, 2000

respectively (Table 4).

Table 5 shows the percentage in accuracy levels in age prediction testing equations from the TCI method. The best estimation was obtained for males using the premolar equation of the sample with an error of ± 5 years in 53.25% of the cases while the best estimation for female and combined samples was the molar equation, with 40.35% and 47.76% accuracy levels respectively.

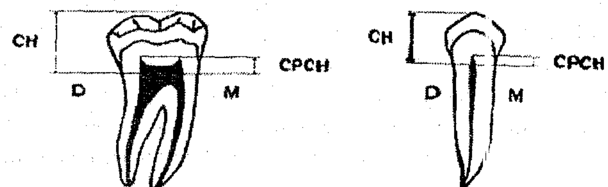

Fig. 1 *Schematic representation of measurements taken off a radiograph. The line traced between the distal (D) and mesial (M) enamel of the premolar and molar represents the division between the anatomical crown and root.*

CH, Corona Height; CPCH, Coronal Pulp Cavity Height.

Table 6 shows the comparison of percentage in accuracy levels between Caucasians as reported by Zadzinska et al.,[18] and the present study. The Malawian population showed higher percentage levels of accuracy in both gender using premolar and molar equations.

Discussion

Our study has demonstrated a higher degree of correlation between age and TCI in Malawian males than females, with the correlation also higher for the premolar than molar teeth in general. This may be an expression of the

overall size of the pulp cavity. The high correlations show that the extent of the coronal pulp cavity is easily visible in premolars and molars in dental radiographs as was indeed shown by Drusini et al., [14] using panoramic radiography.

Gender appears to have a significant influence on age estimation using the Tooth-coronal index (TCI) method as opposed to the study of Drusini et al., [14] and hence there is the need for sex-specific formulae in our sampled population. Testing of these equations revealed that the molar equation had higher percentage accuracy in males, while the premolar equation was more accurate for females and the combined samples. We believe that the molar equation is more appropriate for age estimation of Malawian males, and the premolar equation for females and those of unknown gender. Furthermore, the age of more Malawians was estimated than Caucasians previously studied [18] using similar methods indication of a probable racial variation.

The basis of this method of study is the successive deposition of layers of secondary dentin in the pulp cavity during human life such that more years of life meant more secondary dentin deposition, resulting in a smaller height of the coronal pulp cavity. There is therefore a reversal of the interdependence between calendar age and root dentin transparency with more years of life leading to a higher level of translucent dentin in the root [18].

However, the examination of dental radiographs of fully developed teeth was rarely advocated for use in age estimation despite its many advantages. Furthermore, the method can be employed both on living individuals and on the unknown dead, either in identification cases or in archaeological investigations [12]. The use of an index instead of absolute measures obviates the need to standardize tooth size on the radiographs. So, whatever films are available, can be used for age estimation [14].

In age estimation studies, dental attrition is a factor, which must be acknowledged. However, attrition is related to diet, habits and culture [23, 24] and therefore the results of our study will only be applicable to the Malawian population and those, which do not deviate much from it. There is therefore, the need for similar studies in other parts of the world, especially in Africa. This study therefore illustrates the potential value of a little-known but precise aging method, which can be easily applied to estimate age in both living individuals and skeletal materials of unknown age.

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Cervico-vaginal foetal fibronectin: A predictor of cervical response at pre-induction cervical ripening

***A. O. Adeniji[1], O. Olayemi[2], A. A. Odukogbe[2], A. Oladokun[2], O. I. Adeniji[3], B. E. Egbewale[4] and A. O. Omigbodun[2]**

[1]Department of Obstetrics and Gynaecology, Faculty of Clinical Sciences, College of Health Sciences, Ladoke Akintola University of Technology, P. M. B 4400 Osogbo, Osun State, Nigeria.
[2]Department of Obstetrics and Gynaecology, University College Hospital P. M. B. 5116 Ibadan, Oyo State, Nigeria.
[3]Public Health Nursing Division, University College Hospital, P. M. B. 5116, Ibadan, Oyo State, Nigeria.
[4]Department of Community Medicine, College of Health Sciences, Ladoke Akintola University of Technology, Osogbo, Osun State, Nigeria.
E-mail: tunji1802@yahoo.com; adenijiadetunji@hotmail.com

Summary

Context: **Not all pregnant women with an "unripe" cervix can be successfully ripened by the cervical ripening agents; therefore tests with predictive information are justified.**

Objectives: **To examine the effect of the presence of foetal fibronectin (FFN) in the cervico-vaginal secretions on pre-induction cervical ripening with either intravaginal Misoprostol or transcervical Foley catheter.**

Methodology: **Twenty (20) patients managed at a tertiary health institution in South-western Nigeria between March and May 2003 were randomised for cervical ripening by either intravaginal Misoprostol or Transcervical Foley catheters. Cervico-vaginal secretions were assessed for presence of FFN with Foetal Fibronectin Enzyme Immunoassay Kit (Adeza Corp.) prior to commencement of cervical ripening.**

Main outcome measures: **FFN status, Pre-ripening and Pre-induction modified Bishop scores and duration of cervical ripening.**

Results: **Ten of the fifteen patients with positive membrane immunoassay for FFN achieved ripened cervix (modified Bishop score ≥ 6) within 6 - 12 hours of exposure to the agents of cervical ripening. In the FFN negative group, only 2 of the five patients achieved ripe cervix within the >12 - 18 hours period, the rest being in the >18 - 24 hours period.**

Conclusion: **Foetal fibronectin test may offer useful predictive information prior to institution of processes of cervical ripening in patients with unfavourable cervices.**

Key-words: ***Foetal fibronectin, Foley catheter, Misoprostol, Pre-induction cervical ripening.***

Résumé

Contexte: Pas toutes les femme enceintes atteintes du col de l'utérus qui n'est pas mûr peuvent vivre jusqu' à un âge avancé a travers un agent cervical de maturation; donc des méthodes avec information prédicative sont justifiées.

Objectif: Examiner l'effet de la présence du fibronectin foetal (FNF) dans les sécrétions cervico-vaginal sur la maturation préinduction cervicale avec soit misoprostol intravaginal soit Foley Catheter transcervical.

Méthodologie: Vingt patients (20) soignées dans une institution de la santé tertière du sud ouest du Nigeria entre mars et mai 2003 étaient randomisés pour la maturation cervicale à travers soit Misoprostol intravaginal soit Foley Catheter transcervical. Sécrétions cervico-vaginal ont été évaluées pour la présence de FNF avec le kit immunoassay Enxyme de Fibronection foetal (Adeza corp.) avant le début de la maturation cervicale.

Des mesures principales: Status FNF, prématuration et préinduction score de Bishop modifié et la durée de la maturation cervicale.

Résultats: Dix entre quinze avec immunoassay membrane positif pour FNF avaient réalisé maturation cervicale (score de Bishop modifié ≥ 6) entre 6 - 12 heures d'exposition au agents de la maturation cervicale. Dans le groupe de FNF négatif 2 seulement entre cinq patients avaient réalisé maturation cervicale entre la durée > 12 - 18 heures, les autres étaient la durée entre > 18 - 24 heures.

Conclusion: La méthode Fibronectin foetal pourrait donner une information prédicative valable avant application du processus de la maturation cervicale chez des patients avec le col de l'utérus défavorable.

Introduction

Planned pre-induction cervical ripening and induction of labour has become an established part of modern obstetric practice, especially whenever continuation of pregnancy poses greater risk to either the mother or the foetus.

One of the factors that influence successful induction of labour is the state of the uterine cervix. If the cervix is "unripe" - Bishop's cervical score less than 6 - then the conventional method of induction of labour by surgical amniotomy is technically difficult and titration with intravenous oxytocin results in prolonged labour with risks of maternal and foetal complications and unsuccessful inductions, unnecessarily increasing the rates of caesarean section. The presence of ripened cervix correlates closely with successful induction of labour[1].

Many methods of cervical ripening are available. Some tried and discarded, from the less orthodox - sexual intercourse, nipple stimulation, a variety of herbs and homeopathic solutions, castor oil, enemas and acupuncture[2] to more orthodox methods, such as stripping the membranes, mechanical dilation, amniotomy and pharmacological preparations[3]. In the preparation of the cervix for labour and delivery, a variety of mechanical or pharmacological methods have been developed to induce cervical ripening. These methods include – Hygroscopic dilators, Transcervical Balloon catheter, Antiprogesterone, Relaxin gel, and

*Correspondence

Prostaglandins preparations[2]. Most of the information available on this subject in our population, resulted from studies on mechanical methods of cervical ripening, especially transcervical Foley catheter. Even though studies have shown the benefits of local administration of prostaglandin E_2 (PGE_2), the experience with use of Prostaglandins as pre-induction cervical ripening agents in this environment is very limited, largely due to cost and inadequate infrastructures to maintain these agents in the narrow temperature range required to maintain potency. Misoprostol (Prostaglandin E_1 analogue) shows promises because it is cheaper and is of comparable cervical ripening abilities with PGE_2 and has good shelf-life at even 30°C environmental temperature, such as obtainable in tropical climates.

In clinical practice, not all pregnant women with an "unripe" cervix can be successfully ripened by the cervical ripening agents. These failures lead to anxiety and may evoke un-cooperative attitude in patients under the circumstance. In this regard, reports had suggested that the presence of foetal fibronectin from cervico-vaginal secretions in patients with Bishop score <5 was predictive of a favourable response to induction by prostaglandin pessary (PGE_2) [3], while its absence in cervico-vaginal secretions of patients at 39 weeks' gestation may predict prolonged pregnancy[4]. Foetal fibronectin, a complex adhesive glycoprotein is present in high concentration in both the amniotic fluid and chorio-decidual interface. Matsura et al described a monoclonal antibody called FDC-6 which distinguishes it from the adult fibronectin [5]. It contains a specific epitope referred to as "oncofoetal" domain and its molecular weight is higher than adult plasma fibronectin. The exact mechanism by which foetal fibronectin enters into cervico-vaginal secretions is unclear, however, it has been suggested that changes in the connective tissues of the cervix occurs synchronously with changes in the membranes in the lower pole of the uterus. These changes may result in micro-leakage of amniotic fluid into the vagina, in which foetal fibronectin is found [6].

Therefore, we sought to determine the possible correlation of the presence or otherwise of foetal fibronectin in cervico-vaginal secretions of our patients and the ease of pre-induction cervical ripening with either intravaginal Misoprostol or transcervical Foley catheter. We hypothesize that if any correlation exists with the presence of foetal fibronectin (FFN) in the cervico-vaginal secretions and the response to cervical ripening process with either or both of these agents, it might be possible to rationally utilise FFN to predict the outcome of cervical ripening process with these agents of cervical ripening.

Materials and methods

The study was carried out between March and May 2003 as part of a larger randomised study evaluating transcervical Foley catheter and Intravaginal Misoprostol as pre-induction cervical ripening agents amongst pregnant women, with singleton gestations who presented for antenatal care and delivery at the University College Hospital (UCH), Ibadan. Patients recruited were randomised by means of computer-generated random numbers with blocks of two to either receive 50μg Intravaginal Misoprostol (Cytotec® tablet, Searle & Co., Chicago) or transcervical Foley catheter (Size 16F, with 30ml balloon capacity). All patients were managed on the antenatal wards preparatory to induction of labour.

The study was approved by the institutional review committee. All patients were adequately counselled and their informed consent obtained before their inclusion in the study. The inclusion criteria were, all consenting pregnant women with singleton pregnancy at 37 weeks gestational age or above, cephalic presentation, intact foetal membranes, Bishop's score of 5 or less and normal foetal heart rate. Those with ruptured foetal amniotic membranes were excluded from the study, as the amniotic fluid contains high levels of foetal fibronectin [7].

Cervico-vaginal secretion was obtained by speculum vaginal examination prior to digital examination for assessment of Bishop score by the Principal investigator (AOA). The procedure for the assay of FFN was as detailed in the Adeza Biochemical Specimen collection kit (Adeza Biomedical Corporation, Sunnyvale, California USA) [8]. A Dacron® polyester tipped applicator was inserted into the vagina and rotated around the ectocervix and the posterior fornix for about 10 seconds to ensure saturation of the applicator with cervico-vaginal secretion. The cervix was thereafter assessed by digital vaginal examination. Those patients with Modified Bishop score of ≥ 6 were excluded. The cervico-vaginal secretion applicator was then processed with a qualitative foetal fibronectin membrane immunoassay kit (Adeza Biomedical Corporation, Sunnyvale California, USA). The foetal fibronectin membrane immunoassay is a qualitative fast-reacting solid-phase immunogold assay, whereby specimens obtained are combined with anti-human fibronectin-gold colloid conjugate. Presence of foetal fibronectin leads to the formation of a complex with the anti-fibronectin-gold conjugate, which is then passed through a membrane containing monoclonal antibody (FDC-6) specific for foetal fibronectin. A visible ring near the perimeter of the membrane provides an assay control. A positive sample will appear within 5 minutes as a spot in the membrane within the control ring. The intensity of the colour of the test ranges from lightly visible pink spot to a dark pink/purple spot.

The Obstetricians directly involved in the patients care were blinded to the results of the foetal fibronectin assay. Subsequent management followed the larger study protocol. Those randomised to the transcervical Foley catheter group had the transcervical Foley catheter passed aseptically in the hospital labour ward after explanation of the procedure and informed consent had been obtained. The patient was placed in the lithotomy position using leg supports; vagina was cleaned with antiseptic solution (chlorhexidine). Cusco's speculum was then inserted into the vagina and the cervix was visualised. The catheter was then gripped with the sponge forceps and advanced up the endocervical canal The balloon was then slowly inflated with the 30ml of sterile water or normal saline. The catheter was pulled down such that it was under strain and strapped onto the thigh with the adhesive tape[9]. Mobilisation was encouraged while the catheter was tightly strapped down to the thigh to effect the mechanical dilatation part of the process. The catheter was deflated, removed after 12 hours and cervix re-assessed, if no

spontaneous expulsion had occurred. A new catheter was re-passed for another 12 hours, if Bishop score was less than 6.

Those randomised to the Misoprostol group received 50 μg intravaginally in the posterior fornix. The dose was repeated every 6 hours until satisfactory Bishop score of ≥ 6. Patients who developed spontaneous labour had Bishop score assessed and recorded at the point of the diagnosis.

The maximum dose of Misoprostol was 200 μg or 4 doses of the drug. The time of maximum exposure to either agent was thus 24 hours. Oxytocin induction and active management of labour was commenced in those patients with satisfactory Bishop scores of ≥ 6. Oxytocin infusion was not started before 6 hours after the last dose, in those patients who received intravaginal Misoprostol. By use of a standardized hospital protocol, oxytocin infusion was by gravity-assisted method commencing with 4mU/min and increasing at interval of 30 - minute to achieve adequate contraction pattern (3 - 5, strong uterine contractions, each lasting 40 - 60 seconds) [10].

Baseline data included maternal age, parity, estimated gestational age, indication for induction of labour, assay for presence of fetal fibronectin in cervico-vaginal secretions and pre-ripening modified Bishop score. Outcome measures included, pre-induction modified Bishop score and duration of cervical ripening.

Data entry was into a standard pro-forma and the variables described by number (percentage), mean ± standard deviation/median and range. Differences between groups' Bishop scores were analysed by Mann-Whitney U test. Maternal age and estimated gestational age were analysed with Student's t - test, differences in parity and interval to achieve ripe cervical score in group/sub-groups by X^2 and Fisher's exact as appropriate, all using Statistical Package for Social Science (SPSS) for Window version 11.0.1.

Results

Twenty patients with term or post-term pregnancies and a pre-cervical ripening Bishop score < 5 were recruited in the study. Both groups (15 in FFN positive and 5 in FFN negative) were similar in their socio-demographic characteristics (Maternal age, parity and estimated gestational age) and the indication for the planned induction of labour. There was no statistical difference in the pre-cervical ripening and pre-induction of labour modified Bishop score in both groups (Table 1). Fifteen of the twenty patients {7 (Misoprostol) and 8 (Foley catheter)} had a positive membrane immunoassay for foetal fibronectin. There was no statistical difference in the distribution of all the patients with positive or negative assay tests for maternal age, parity, estimated gestational age, pre-ripening cervical and pre-induction cervical scores.

Table 1 Cervical assessment by modified Bishop score

Bishop score		Misoprostol n = 10	Foley catheters n = 10	Significance***
Pre-ripening score	01	1 (10.0%)	- (0.0%)	
	02	2 (20.0%)	2 (20.0%)	
	03	4 (40.0%)	5 (50.0%)	
	04	3 (30.0%)	2 (20.0%)	
	05	0 (0.0%)	1 (10.0%)	0.63 (NS)
Mean group Bishop score		2.9 ± 0.9	3.2 ± 0.9	
Pre-induction of labour score				
	06	3 (30.0%)	2 (20.0%)	
	07	3 (30.0%)	6 (60.0%)	
	08	4 (40.0%)	1 (10.0%)	
	09	-	1 (10.0%)	0.87 (NS)
Mean group Bishop score		7.1 ± 0.9	7.1 ± 0.9	

Data presented as number and percent, mean ± SD, NS = Not significant
**** Mann-Whitney U test*

Table 2 Duration of cervical ripening according to presence or absence of fetal fibronectin in the cervico-vaginal secretions (Hours)

	6 - 12	>12 - 18	>18 - 24	P-value****
Positive for fetal fibronectin (n = 15)	10 (66.7%)	3 (20.0%)	2 (13.3%)	**0.027 (S)**
Negative for fetal fibronectin (n = 5)	-	2 (40.0%)	3 (60.0%)	

Data presented as number and percent, S = significant.
*****Pearson's Chi square*

Positive fetal fibronectin assay test (Table 2)

Sixty-seven percent (10/15) of the patients with positive

membrane immunoassay for FFN achieved ripened cervix (modified Bishop score $\geq$ 6) within 6 - 12 hours of exposure to the ripening agents. The entire patients (7/7) with positive FFN test in the Misoprostol group and 3 of the 8 patients in the Foley catheter group were distributed in this category. The remaining 5 patients in the Foley catheter group were distributed in the >12 - 18 hours (3 patients) and >18 - 24 hours (2 patients) periods respectively.

Negative fetal fibronectin assay test (Table 2)

In this category, none of the patients achieved ripened cervix in the period 6 - 12 hours. Two patients (1 each in Misoprostol and Foley catheter) in this group however achieved ripe cervices in the period of >12 - 18 hours, with the remaining 3 {Misoprostol (1), Foley catheter (2)} patients were distributed in the period >18 - 24 hours.

Discussion

This study shows that the presence of foetal fibronectin in the cervico-vaginal secretions of women with unripe cervices indicates a favourable response in majority of patients, within 6 - 12 hours of exposure to either intravaginal Misoprostol or transcervical Foley catheter, in the process of pre-induction cervical ripening. All of the patients randomised to the Misoprostol group and who had foetal fibronectin demonstrated in their cervico-vaginal secretions, achieved favourable modified cervical Bishop scores, at most within 6 - 12 hours of exposure to 50μg Intravaginal Misoprostol. While, this showed possible association in the Misoprostol group, the observation in the Foley catheter group was less remarkable, at least from this study, as only 37.5% (3/8) of the patients in this group had achieved favourable cervical scores in the same period. From this study, the possible confounding effects of parity, estimated gestational age at cervical ripening and pre-ripening cervical score were explored and excluded, as there were no significant differences between the foetal fibronectin positive and negative categories before the institution of either Misoprostol or Foley catheter for cervical ripening.

This study probably may be one of few, if any, that had explored the possible association of foetal fibronectin and the ease of cervical ripening with either intravaginal Misoprostol or transcervical Foley catheter. Consequently, it was difficult to compare our findings with any other report(s). However, Tam and associates demonstrated a favourable response to induction by prostaglandin pessary in women with Bishop score <5 in the presence of foetal fibronectin from cervico-vaginal secretions [3].

If the findings of this preliminary study could be reproducible in other centres, it will be possible to predict more accurately the outcome in patients undergoing cervical ripening and thus minimise anxiety associated with unsuccessful pre-induction cervical ripening.

The major limitation of this study was the small population enrolled due to cost of the assay kit. Moreover, it was difficult to exclude in this study, the effects primarily due to Misoprostol as a cervical ripening agent demonstrated in our earlier study[11]. We recommend larger, possibly multi-centre and quantitative assay test studies to accurately predict the effects and the significant levels of foetal fibronectin in cervico-vaginal secretions predictive of cervical response in the ripening process.

Conclusion

We conclude that foetal fibronectin test may offer useful predictive information prior to cervical ripening with intravaginal Misoprostol or transcervical Foley catheter in patients with unfavourable cervices.

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Guidelines for assessment of publications for contribution to scholarship: A view point

O. G. Ajao and T. O. Lawoyin*

*The College of Medicine, Departments of Surgery and *Community Medicine, University of Ibadan and University College Hospital, Ibadan.*

Summary

Background: **There does not seem to be a uniform method of assessment for promotion in the various tertiary institutions in Nigeria. The result of this is that a professor in one institution may just qualify to be a senior lecturer in another in the same country. An attempt is being made in this write-up to devise a method of standardization for promotion in tertiary institutions in Nigeria.**

Method: **Literature dealing with peer review process, writing clinical research papers, and assessment were reviewed. Also various methods of assessment for promotion in some tertiary institutions were studied.**

Results: **There are six areas of assessment of the publications of a candidate for academic promotion. They are (a) the quality of the journal where the article were published; (b) the type of research; (c) the scientific quality of the paper; (d) the relevance of the paper to the author's discipline; (e) the numerical position of the authorship of the candidate being assessed; (f) and the number of publications.**

Conclusion: **Having a clear-cut and more objective way of grading a prospective candidate will ensure uniformity, allow the candidate to work realistically towards a goal and to aim high, reduce subjective assessment, reduce the chances of injustice, and encourage non-indexed local journals to aspire to get indexed or die a natural death.**

Key-words: *Uniform assessment, Standardization, Promotion, Tertiary, Institution.*

Résumé

Introduction: Il paraît qu'il n'y a pas une méthode uniforme pour une évaluation afin d'assurer un avancement des institutions tertiares diverses au Nigéria. A la suite de cette observation, un Professeur de faculté dans une institution peut être simplement accepté comme maître de conférence dans une autre dans le même pays. Il s'agit d'un effort à travers cet article, d'imaginer une méthode de uniformisation pour l'avancement des institutions tertiaires au Nigéria.

Méthode: La littérature qui traite le processus du bilan du pair, composition des recherches, et évaluation ont été passés en revue. Et aussi des méthodes d'évaluation pour un avancement dans quelques institutions tertiaires ont été étudiées.

Résultats: Il y a six niveaux d'evaluation de la communication d'un candidat pour un avancement académique. Ils sont les suivants: (a) La qualité du journal à travers lequel cet article est publié (b) Le genre du recherche, (c) La qualité scientifique de cet exposé, (d) La pertinence de cet exposé par rapport à la discipline de l'auteur (e) L'état numérique de la paternité du candidat dont il s'agit, (f) et la quantité de la publication.

Conclusion: Si on arrive à avoir un moyen plus objectif et bien défini pour évaluer un exposé d'un candidat potentiél, ceci va assurer une uniformité et va permettre au candidate de travailler avec réalisme vers un but et provoquer son ambition, réduire une évaluation subjective, réduire le risque d'injustice, et encourager les journaux locaux non-indexés à aspirer d'être indexé ou bien avoir une mort naturelle.

Introduction

Publications of manuscripts can be traced back to after the Renaissance when scientists began exchanging letters about their work. [1,2,3] So in actual fact, the idea of academic publishing is to disseminate knowledge, to improve patients' care and to correct previously unknown errors in treatment. Any academic who is doing this therefore deserves to be compensated in form of promotion. Unfortunately, in academic circule this has been reversed. Academics now publish to get promoted, and not necessarily to disseminate knowledge. The results of this philosophy are disputable and unscientific articles appearing in non-indexed journals of questionable standards.

Infact, it is well known that a group of academics can start a journal over-night in their department to publish all their articles of questionnable scientific value just to have publications for promotion exercises, and not for the sake of disseminating knowledge. In many such cases, as soon as they achieved their objectives, and the promotion exercises have been completed, such journals disappear from circulation.

To forestall this practice, many international indexers have strict guidelines before a journal is indexed.[4] Therefore for practical purposes, articles in non-indexed journals are usually not rated as papers of serious scientific value, even though many good articles have been seen in non-indexed journals.[5] As a matter of fact, many highly rated international journals do not accept citations from non-indexed journals.

Our formal education in the universities does very little to prepare us for assessment of publications for promotion. Therefore, when confronted with this, we act by intuition, and by our own personal experiences, hoping for the best! But this produces a non-uniform cadre of Professors, Readers, and Senior Lecturers even in the same community! A Professor in one university may rate only as a Senior Lecturer academically in another university.

This paper, therefore attempts to devise a method of assessing publications for promotion in tertiary institutions.

Parameters to consider for scoring

There are essentially six aspects of publications that require evaluation: They are (a) the quality of the journal where the article is published; (b) the type of research; (c) the scientific quality of the paper; (d) the relevance to the author's discipline; (e) the numerical position of the authorship of the candidate being assessed; (f) and the number of publications.

**Correspondence*

(a) The quality of the journals where the articles are published

The Impact Factors (IF) are widely used to rank and evaluate journals.[6,7] Impact Factors as defined by Garfield are the *"ratios obtained from dividing citations received in one year by papers published in the two previous years. Thus the 1995 impact factor counts the citations in 1995 journals issues to "items" published in 1993 and 1994"*[6] Smith[8] mentioned that IF *"is calculated by dividing the number of citations of papers in the journal by the number of papers that could be cited.* Also Seglen[7] clarified it further *"the recorded number of citations within a certain year (for example 1996) to the items published in the journal during the two preceding years (1995 and 1994) divided by the number of such items (this would be the equivalent of the average citation rate of an item during the first and second calendar year after the year of publication."* He also mentioned that *"the Science Citation Index database includes only normal articles, notes and reviews in the denominator as citable items, but records citations to all types of documents (editorials, Letters, Meeting abstracts, etc.) in the numerator.."*[7] However, evaluating a journal on the basis of Impact Factor (IF) has certain flaw because as Garfield[6] pointed out this "simply reflects the ability of journals and editors to attract the best paper available."

The Impact Factors of many journals used by the academics in Africa have not been determined, therefore this cannot be used at present to assess journals. To rate the journals therefore, we have used the following: International Indexed journals = 5; Local Indexed journals = 4; Others non-indexed journals = 1.

To award a score, if we assume that the candidate (whom we shall refer to as Dr. Acada for this presentation) has a total of accepted 26 valid publications, with 5 in International Indexed journals; 10 in Local Indexed journals and the remaining 11 in Local non-indexed journals, his score will be calculated as follows:

(5 x 5) + (4 x 10) + (11 x 1) = **76.**

Total score obtainable if all his publications were in international indexed journals will be (26 x 5) = **130.**

The score for Mr. Acada in this section will be 76/130 x 100 = **58.5%**

However for the same 26 publications, if the distribution is as follows: 10 in international indexed journal; 5 in local indexed journals and 11 in non-indexed local journals; then using the same criteria his score will be (10 x 5) + (5 x 4) + (11 x 1) = 81/130 x 100 = **62.3%**

To get a cut-off point of about 70% with this 26 publications, Dr. Acada has to have something like this: 9 in international indexed journals; 10 in local indexed journals and 7 in non-indexed journal. This will give a score of 45 + 40 + 7 = 92/130 x 100 = **70.8%**

The numbers of publications do not really matter much here if they are not in indexed journals. In fact, it is actually a disadvantage to the candidate to present many articles in local non-indexed journals, as shown by this example:

If Dr. Acada has 35 publications distributed as follows: 5 in international indexed journals; 5 in international indexed journals; 5 in local indexed journals and remaining 25 in local non-indexed journals; his score will be as follows: (5 x 5) + (5 x 4) + (25 x 1) = 70/(35 x 5) x 100 = **40%**

(b) The type of research

In the medical and biomedical settings various research studies can also be evaluated and scored.[9, 10] These can be grouped into five categories: (i) animal and laboratory studies with controls, clinical trials, intervention studies, and prospective studies (5 marks); (ii) cross sectional analysis, retrospective cohort, case-control, nested case-control, and epidemic investigations (4 marks); (iii) case reports, chapters in books, books, and review articles (3 marks) (iv) articles on medical education (2); (v) letters to the editor, technical reports, proceedings, and brief reports (1 mark).

If Dr. Acada has 8 prospective studies, 12 retrospective studies, 5 case reports, and 1 technical report, his score will be (8 x 5) + (12 x 4) + (5 x 3) + (1 x 1) = 104.

Total score obtainable from his 26 publication is (26 x 5) = 130

The score Mr. Acada obtained in this section therefore will be 104 / 130 x 100 = **80.0%**

Therefore the more work the candidate does in (i) and (ii), the higher the score in this section.

(c) The scientific quality of the research

This assessment is subjective and is dependent on the assessor[11, 12] But it is not totally arbitrary since the assessor is usually an expert in the candidate's field of specialization. The scientific quality of the article is scored as follows: Excellent 5; Very Good 4; Good 3; Fair 2; Poor 1.

If Dr. Acada has 3 Very Good; 6 Good; 11 Fair and 6 Poor articles, his score will be (3 x 4) + (6 x 3) + (11 x 2) + (6 x 1) = 58

Total score obtainable from his 26 publications if all are Excellent is (26 x 5) = 130

The Score Dr. Acada obtained in this section therefore will be 58/130 x 100 = **44.6%**

(d) The relevance of the publications to the discipline

This should not create any problem because usually the area of specialization of the candidate is always clear-cut. Occassionally however, the candidate may wander to an area that is peripheral to the discipline, or different from the discipline. This occurs more often than not when the candidate is the fifth or fourth author of the publication. This can be scored as follows: Relevant to the discipline 5; Peripherally relevant 3, Not relevant to the discipline 0.

If Dr. Acada has 22 relevant publications; 2 peripherally relevant publications and 2 not relevant publications; his score will be as follows:

(22 x 5) + (2 x 3) + (2 x 0) = 116.

Total score obtainable if all the 26 papers are relevant = (26 x 5) = 130

The score Dr. Acada obtained in this section therefore will be 116 / 130 x 100 = **89.3%**

(e) The numerical position of authorship in the publications

In many publications, the first author is usually regarded as the leader of the team and usually contributes most to the

publication. The further the position of the author the smaller is the contribution to the manuscript, except on rare occassions. Therefore on the basis of this assumption the numerical position for authorship can be graded as follows: First Author 5; Second Author 3; Third Author 2; Others 1 point each.

If Dr. Acada is the First author in 12; second author in 10; and fourth author in 4, his score will be (12 x 5) + (10 x 3) + (4 x 1) = 94

Total score obtainable from his 26 publications if he were the first author in all will be (26 x 5) = 130

The score Dr. Acada obtained in this section therefore will be 94 / 130 x 100 = **72.3%**

(f) Grading by the number of publications

The upper limit of numbers to be used for calculation in this section can be worked out as follows: when a candidate is employed as lecturer grade 1 he or she usually has 3 - 5 publications (at least 3) at the time of employment. It takes at least 3 years for such a candidate to be considered for promotion to the grade of a senior lecturer. Assuming he has 4 publications every year, his total number as a senior lecturer will be 15 publications. It takes another 3 years at least to be considered for promotion to the grade of a Reader. Thus the 4 publications per year can be extrapolated from senior lecturer to Reader to give 27 publications. Promotion from the grade of a reader to that of a professor is at least a period of 3 years. Using the same criterion of 4 publications per year, the upper limit of number for calculation for professorship will be 39 publications.

Therefore the calculations in this section will be as follows:

For the grade of Senior Lecturer 15 articles are regarded as the upper limit for calculation. So, if a candidate for that post has 8 publications, his score in this section will be (8 / 15 x 100) = **53.3%**

For the grade of a Reader 27 articles are regarded as the upper limit for calculation. So, if the candidate has 26 publications (like Dr. Acada) his score will be (26/27 x 100) = **96.3%**

For the grade of a professor 39 articles are regarded as the upper limit for calculation. So, if the candidate has 26 articles (like Dr. Acada) his score will be (26/39 x 100) = **66.7%**

It is obvious from here that in this section Dr. Acada with his 26 publications is qualified to be a reader (96.3%), but not qualified to be a professor (66.7%).

Discussion

The fate of Dr. Acada will now be determined by the average of all the scores. If the application is for the grade of a Reader, the score will be as follows: (58.5 + 80.0 + 44.6 + 89.3 + 72.3 + 96.3)/6 = 73.5%

But if the application is for professorship, then the score will be as follows: (58.5 + 80.0 + 44.6 + 89.3 + 72.3 + 66.7)/6 = 68.6%

Taking 70% as the pass mark, these scores show that Dr. Acada is qualified to be promoted to the grade of a Reader, but not qualified to be promoted to the grade of a professor. The main difference here is in the number of publications.

All the six areas of assessment considered here are based on the assumption that they all have equal weighting for assessment exercise. Ideally articles in non-indexed journals should not be scored because it is doubtful if such articles can stand up to scrutiny in a court of law. But in this paper non-indexed journals are scored one mark for the purpose of giving every journal a score, but the scoring is weighed in favour of journals that can readily disseminate knowledge because they are indexed. Also, in this exercise the journals are scored based on where published and whether indexed or not. This is not without some flaws. Ideally, it would have been nice to classify the journals as excellent (5), very good (4), good (3), fair (2) poor (1) and non-indexed (0). But without the impact factors of the journals, this may not be possible. It will most likely depend on the impressions of the assessor. But even with the impact factors available, this may even be considered as arbitrary because as Garfield[6] pointed out it «...simply reflects the ability of journals and editors to attract the best paper available.»

In considering publications for assessment, not all listed publications in the curriculum vitae may merit consideration.[14, 15, 16] Duplications, articles with no acceptance letter, or letter of acceptance more than 2 years without publication should not be considered valid. Also articles with only letters of submission, acknowledgement, or correction are not considered valid. Articles that have no bearing to the discipline of the candidate are also not considered valid publications.

In this exercise, authorship position was scored accordingly. However, some experts who have dealt with many academic assessment and promotion,[17, 18] feel that numerical position of authorship may not be relevant[18], and what is important is the contribution of each author to the planning of the project, and actual execution of the project. It is felt that multi-disciplinary research is now the norm especially in the discipline of science. The problem here is how to quantify the various contributions of each participant in the research project.

Books and chapters in books are treated as research articles and also graded as such.

We have awarded marks to case reports and letters to the editor in this exercise because it is not the title or the length of a research paper that is important, it is the content of the paper. Glen Davis' case report on Parkinson's disease made great contribution to the understanding of the disease[3,5] Also, the article by J. D. Watson and F. H. Crick on the structure of DNA for which they won a Nobel Prize, and which appeared in Nature in 1953, occupied just over half a printed page.[3, 5, 13]

The term Associate Professor is a misnomer in the context that is being used in some institutions. It is appropriate in the American university system where there are three levels of promotion: Assistant Professor, Associate Professor and Professor. In the system similar to that of the British universities there are four levels of promotion: Lecturer, Senior Lecturer, Reader (not Associate Professor) and Professor.

The average of all the scores in the six sections will give the overall score of the candidate, and anyone with a score of 70% and above is considered successful.

Conclusion

Assessing academics for promotion has very little clear-cut guidelines. But for the sake of uniformity some sort of universally accepted formula is necessary in a community. Having a clear-cut and more objective way of grading a prospective candidate will ensure uniformity, allow the candidate to work realistically towards a goal, and to aim high. It will also reduce subjectivity in assessment, reduce the chances of injustice, and encourage non-indexed journals to get indexed or to die a natural death.

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New study shows asthmatics can live free of symptoms

An international study has shown that a complete absence of all signs and symptoms of asthma can be achieved with sustained regular treatment. The landmark study tagged Gaining Optimal Asthma Control (GOAL). One of the largest ever asthma studies - conducted in 44 countries across the world, showed that more than 40 per cent of patients with asthma were able to achieve 'total control' of their symptoms within the one year study period.

Total control was defined by the study investigators as the absence of asthma symptoms, including: no day-time symptoms; no night-time awakening; no exacerbations; no use of 'rescue' medications; near normal lung function; no emergency room visits; and no adverse events leading to a prescription change, for seven out of the eight week assessment period. With regular, sustained treatment, many study participants had better control of their asthma, as defined by the study.

The GOAL study, conducted in the 44 countries across the world over a one-year period, demonstrated that 41 per cent of the GOAL patients treated with *Seretide*™ (salmeterol/ fluticason propionate), instead of an inhaled corticosteroid alone (fluticasone propionate), attained and maintained the stringent study criteria for total control. Further, by aiming for total control, 71 per cent of patients using *Seretide*™ achieved well controlled asthma, which was the primary study objective.

According to Dr. Cyril Chukwu, Consultant Chest Physician, Lagos University Teaching Hospital, Idi-Araba, Lagos who has been involved in the dissemination of the GOAL study to the science community in Nigeria and Ghana, the study showed that regular, sustained use of *Seretide*™ at the appropriate dose, can help many patients with asthma to achieve Total control.

«Many asthma patients were able to live virtually free of their symptoms during the study. The result, in fact exceeded the researchers' initial expectations,» he said.

Dr. Chukwu however noted that the disease affects between 100 - 150 million people worldwide. According to him, asthma has remained uncontrolled for a large number of patients over the years.

«The GOAL study has shown that it is indeed possible for asthmatics to live virtually without symptoms. This is no doubt good news to Nigerian patients. It also means that we, as healthcare providers, must encourage patients to achieve Total control of their asthma,» Dr. Chukwu further said.

The GOAL study defined two levels of asthma control: *well controlled* asthma (the primary goal), and the more stringent definition of *total control*. Both levels of control were measured by reviewing a number of factors, or endpoints, used to evaluate overall treatment effectiveness.

The definition of *total control* used in the trial is the most rigorous used in any asthma trial to date and, to achieve total control, patients had to achieve and sustain that level of control for at least seven weeks out of an eight-week assessment period within the one year study. Total control was defined as the absence of asthma symptoms, including: no day-time symptoms; no night-time awakening; no exacerbations; no use of 'rescue' medications; near normal lung function; no emergency room visits; and no adverse events leading to a prescription change. Well-controlled asthma was similarly assessed over eight weeks but allowed a low level of symptoms and rescue medication use.

The one-year GOAL trial was a stratified, randomized, double-blind, parallel-group trial of more than 3,421 patients from 44 countries around the world. It is the first study ever to assess whether guideline-defined asthma control is clinically realistic.

The primary objective of the study was to determine the proportion of subjects who achieved well-controlled asthma with *Seretide* compared with an inhaled corticosteroid (ICS) alone during Phase I. GOAL also measured what proportion of adult and adolescent patients (from 12 to 80 years of age) could achieve total asthma control with salmeterol/fluticasone propionate combination (*Seretide)* or fluticasone propionate alone.

Treatment was stepped up every 12 weeks until either total control was achieved or the maximum dose of inhaled corticosteroid was reached. This phase was followed by a constant dose phase for a total double-blind period of 52 weeks to assess if control could be maintained over time, and if there was incremental benefit. Control was assessed over the last eight weeks in each twelve-week step-up period.

Study results show more patients taking *Seretide* achieved total control than those taking an inhaled corticosteroid (fluticasone propionate) alone (41 per cent versus 28 per cent). In addition, this level of control was achieved significantly faster, and with a lower dose of inhaled corticosteroids with *Seretide*, than with inhaled corticosteroids only.

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Renal, colonic and retroperitoneal Actinomycosis - A case report

*Anand L. Gidwani[1], David Connolly[1], Azmat Khan[1], Robert Kemohan[1], Malcolm Brown[2] and Brian Kenny[2]

[1]*Department of General Surgery and Urology, Causeway Hospitals Trust Coleraine, Northern Ireland. 12 Lynda Meadows, Jordanstown, Newtownabbey, Co Antrim, Northern Ireland, United Kingdom.*

[2]*Department of Histopathology, United Hospital Trust, Antrim, Northern Ireland,*

E-mail: gidwanianand@hotmail.com

Summary

An unusual case of actinomycosis involving the kidney, retroperitoneum and colon is reported. A 41 year old patient with two weeks history of loin pain was found to have a palpable renal mass on clinical examination. Imaging revealed a solid mass arising from the left kidney, invading the retroperitoneum suggestive of an invasive hypernephroma. A nephrectomy, partial resection of psoas and colonic resection with end to end anastomosis was performed. Histopathology revealed renal actinomycosis with involvement of the adjacent colon and retroperitoneum. He recovered well after surgery and was treated with penicillin for one year. Five years have elapsed since presentation without any evidence of clinical recurrence. Abdominal actinomycosis though rare, should be borne in mind while investigating patients presenting with an abdominal mass.

Key-words: *Actinomycosis, Renal, Colonic, Retroperitoneal, Cure*

Résumé

Il s'agit d'un rapport sur un cas peu ordinaire d'une actinomycose impliquant le rein, retropéritoine et le côlon. Un patient agé de 41 ans avec l'histoire de la douleur du reins d'une durée de deux semainese était noté d'avoir une masse rénale palpable au cours d'un examen clinique. L'imageur avait indiqué une masse complète venant de rein du côté gauche, qui a envahi la retropéritoine évocateur d'une hypernephrome complet. La nephrectomie, ablation chirurgicale partielle, du psoas et ablation chrurgicale colonique avec bout à bout anastomose a été opérée. L'histopathologie avait indiqué une actinomycose rènale impliquant le côlon attenant et retropèritoine. Il est tout à fait remis apres l'intevention chirurgicale et traité avec la pénicilline pendant une année. Il y a cinq ans depuis présentation sans aucune preuve de la récurrence clinique. On doit se souvenir de la actionomycose, quoique rare, pendant que l'on soigne des patients atteints de la masse abdominale.

Introduction

Actinomycosis is a bacterial infection that can affect virtually any site in the body. Oral and cervicofacial lesions are the most common sites but due to its rarity, recognition of this disease is uncommon. Renal involvement though extremely rare, can occur as a result of haematogenous dissemination from a cryptic or a defined non-contiguous source. Renal involvement may also occur by a direct extension from within the peritoneum or thorax.

Renal actinomycosis is difficult to diagnose both clinically and at radiology. It is mostly demonstrated at histopathology[1]. Despite the advent of efficacious antimicrobial therapy, surgery is often performed because the disease cannot be diagnosed with other modalities. Since the prognosis is good, this pathology should be considered as a differential diagnosis while investigating a renal mass.

Case report

A 41-year-old man presented with pain in the left loin of two weeks duration. On examination there was tenderness in the left loin with a palpable mass suggestive of an enlarged left kidney. Laboratory findings revealed mildy raised inflammatory markers and analysis of urine was normal. Plain

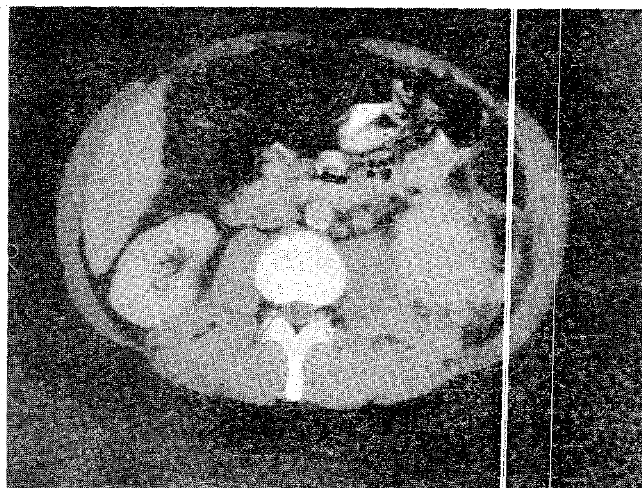

Fig. 1 *Normal right kidney; stranding of perirenal fat and thickening of adjacent descending colon on the left side; expanded left kidney with loss of parenchymal appearance; invasion of left psoas muscle and enlarged paraortic lymph nodes.*

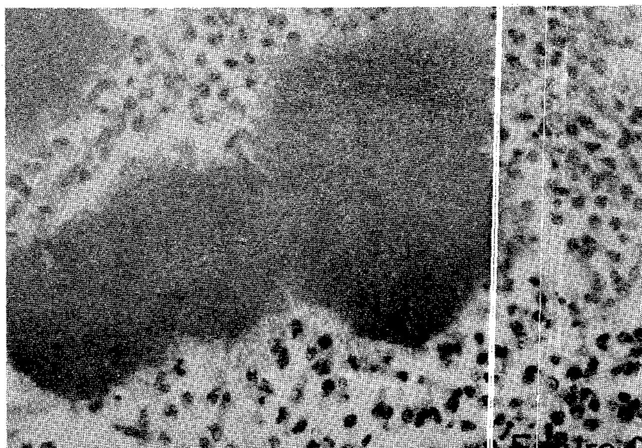

Fig. 2 *The section shows a dense infiltrate of pus cells, in the centre of which there is a colony of actinomyces (sulphur granule).*

x-ray of the chest was reported within normal limits. Abdominal ultrasonography revealed a solid mass in the lower pole of the left kidney. A neoplasm was suspected and computer tomography (CT) scan revealed a large mass consistent with a "large locally advanced left hypernephroma, with invasion of the left psoas and descending colon" (Fig. 1).

At laparotomy, an en-bloc resection of the left kidney, partial excision of the adherent psoas muscle and segmental colonic resection with end to end anastomosis was performed. Histopathology revealed actinomycotic renal carbuncle with fibrosis and abscesses involving the perinephric tissues (Fig. 2). A small actinomycotic abscess was found in the submucosa of the adherent colon.

Ten days after surgery, the patient was readmitted with upper abdominal pain and vomiting, suggestive of small bowel obstruction. A gastrograffin study was performed which revealed hold up in the proximal jejunum. At laparotomy adhesions between the jejunum, renal bed and colonic anastomosis were noted. All adhesions were lysed and the adherent loop of small bowel was resected with an end-to-end anastomosis. The colonic anastomosis was refashioned.

Histopathology of the jejunal specimen revealed serosal adhesions while that of the colonic anastomotic rings revealed colonies of actinomycosis. Post-operative recovery was satisfactory and the patient was commenced on penicillin, which he received for one year. He had regular follow up over five years, during which time he remained asymptomatic.

Discussion

Actinomycosis is most commonly caused by Actinomycosis israelii, though many other species have been recognised. It is a gram-positive anaerobe and often lies in the carious cervices of teeth or in the deep crypts of the tonsil[2]. Infection can occur at all ages; the peak incidence is reported to be in the mid-decades (20–60 years)[3]. The disease is more common in men and there is no seasonal or occupational predilection[4]. Actinomycosis israelii acts as an opportunistic infection, usually in association with bacterial infection and tends to follow a break in the normal mucosal barriers[4]. The overall incidence for actinomyces has undoubtedly diminished since the pre-antibiotic era when this disease was not only common but also behaved in a more malignant way. The tissue reaction caused by actinomycotic infection results in formation of a mass of hard fibrous tissue, almost avascular, and on section looks very much like a sarcoma or a schirrous carcinoma[2].

It has been called "the most misdiagnosed disease" and there is no disease, which is so often missed by experienced clinicians[2]. The disease though best recognised in the oral and cervicofacial areas, has been reported in other sites including the abdomen, chest, central nervous system and musculoskeletal system[2].

All levels of the urogenital tract can be infected by actinomycosis. Renal involvement manifests as pyelonephritis, renal carbuncle, perinephric abscess or renal mass. Primary actinomycosis of the retroperitoneum has been described but the majority of these cases are thought to be due to secondary spread from a cryptic or obscured abdominal source[5]. Involvement of the gastrointestinal tract is usually secondary to a breach in the mucosa. In this present case, the origin of actinomycotic infection is not clear, but both clinical and pathological diagnosis favoured a primary renal involvement with secondary spread to the colon.

Associated symptoms in abdominal actinomycosis are usually non-specific. While pain and fever are the most common symptoms, a palpable mass and formation of fistulae are the most commonly encountered physical findings[4]. When renal involvement occurs, haematuria and pyuria are often present, unlike in our case. Also, Actinomyces species can be successfully detected in the urine if appropriate stains and anaerobic cultures are utilised[6]. Retroperitoneal or bowel involvement usually presents either as an abscess or a firm-to-hard mass, which is often fixed to the underlying tissues and mistaken for a tumour. Sinus tracts to the abdominal wall or perianal region may develop mimicking Crohn's disease.

At CT scan, actinomycotic lesions appear as solid masses with focal areas of low attenuation or as cystic masses with thick enhancing walls[7]. The role of ultrasound-guided aspiration followed by appropriate staining therefore avoiding a nephrectomy, has been highlighted in the past[8]. Horina et al have recently reported the role of T1- and T2-weighted magnetic resonance imaging for the diagnosis of renal actinomycosis[9]. The bacteriological identification of actinomycosis from the sulphur granules or from a sterile site confirms the diagnosis. Periodic acid-Schiff and Grocott-Gomori methenamine tests are specific for actinomycosis. Penicillin is the antibiotic of choice. The two principles with this therapy, which have been accepted over the past fifty years, include: "high doses of antibiotics" for "prolonged period of time"[2]. Penicillin should be given in large doses, 100,000 to 200,000 units per day for 10 to 14 days. After several weeks rest repeated courses of the treatment to be instituted over 12 months, or at any time of recurrence[2].

Abdominal actinomycosis is perhaps the greatest challenge. This infection is rarely considered before the clinical laboratory or pathology establishes its diagnosis, as in this case. Given the favourable prognosis of this infection, actinomycosis should be borne in mind while investigating patients with both acute and chronic abdominal pathology. Modern imaging techniques like ultrasonography, computerised tomography (CT), and magnetic resonance imaging (MRI) should be used in the differential diagnosis of an abdominal mass, to exclude the possibility of abdominal actinomycosis in certain abdominal conditions.

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Cutaneous myiasis presenting as chronic furunculosis - case report

***Hannah O. Dada-Adegbola and Olufunke A. Oluwatoba**
Department of Medical Microbiology and Parasitology,
University College Hospital, Ibadan.
E-mail: hodada-adegbola@comui.edu.ng

Summary

Myiasis is the infection of tissue or organ of living humans or animals by the maggot or larval stages of flies. In Africa, the most common fly responsible for cutaneous myiasis is the tumbu fly, *Cordylobia anthropophaga*[2].

We present two cases of cutaneous myiasis seen on the upper abdominal wall and anterior chest wall. Both were initially diagnosed as furuncle (common boil), but from high index of suspicion of myiasis, followed by application of petroleum jelly and palm oil to occlude the spiracle and the expulsion of larva stage of *Cordylobia anthropophaga* the diagnoses in both cases were confirmed.

Key -words: *Cordylobia anthropophaga, Cutaneous myiasis*

Résumé

La myiase est une maladie parasitaire due à l'infestation par des larves d'insectes (diverse aspèces de mouches) infection du tissu ou organe du l'être humain ou bien un animal. En Afrique, la mouche la plus ordinaire responsable pour la myiase cutanée est la mouse tumbu cordylobie anthropophaga[2].

Nous présentons deux cas des myiases cutanées vues dans la paroi abdominale supérieure et la paroi de la potrine antérieure. D'abord, on avait diagnostiqué les deux comme le furoncle (furoncle ordinaire) mais à partir d'un index élevé du soupçon de la myiase, suivi par l'application d'une vaseline et l'huile de palme afin de boucher le stimale et l'expulsion d'état de la larve de cordylobie anthropophagie les diagnostics dans les deux cas ont été confirmés.

Introduction

Myiasis is the infection of tissue or organ of living humans or animals by the maggot or larval stages of flies. Numerous species of flies can cause various types of myiasis in man[1,2], but in most societies, this condition is uncommon; however, in some of the more primitive societies myiasis occurs frequently[3]. Myiasis have been reported from various regions of the world and can therefore be said to be of worldwide distribution,[1-6] although there may be differences in the species of flies responsible likewise the clinical presentation may also vary from one place to the other as contained in the reports.

In Africa, the most common fly responsible for cutaneous myiasis is the tumbu fly, *Cordylobia anthropophaga*[6-8]. The adult fly is not carnivorous but feeds on filths, especially human and animal feaces[7]. The eggs that are deposited on, dry sands, soils or clothing contaminated by human or animal feaces or urine, hatch within 2 days. The emerging larva can burrow with the mouthhooks into an intact skin where it matures between 10-12days[7]. After maturation, the larva wriggles itself out for pupation in house crevices and then matures to adult fly[7].

The cutaneous infection usually mimics the bacterial furuncle. At times it may be the unresponsive nature of the lesion to antibiotic therapy or the fact that the 'boil' has refused to mature enough for incision and drainage that raises the suspicion of myiasis as a possible diagnosis.

We present here two cases of Furuncular myiasis

Case 1

A 51-year- old woman presented with three weeks history of boil on the upper abdominal wall near the epigastric region. She initially presented to a general practitioner who on assumption that she had an infection made the diagnosis of furunculosis and placed her on oral Ampiclox[R] 500mg four times daily for five days while waiting for the "boil to ripe". After the completion of the antibiotic regime the boil although not increasing in size still remains hard, the physician and the patient presumed it may be absorbed with time and resolve spontaneously and therefore may not require incision and drainage. The patient waited for another week and when there was still no evidence of resolution, she presented at the University College Hospital, Ibadan. Her history revealed a visit to a rural village for evangelism during which time she had to spread her cloth on an open ground. Part of her experience was that she felt the boil to be pulsating and biting. She sometimes experienced a kind of movement within the boil. From a high index of suspicion and a closer look at the swelling, a pinhead black dot was observed on the topmost part of the furuncle. She, on doctor's advice applied Vaseline (Petroleum jelly) on the 'boil' and within 30minutes, the movement within the boil became intensified so also was the discomfort. A diagnosis of myiasis was confirmed and with a gentle squeeze, a maggot came out with a popping sound. The wound healed completely in five days and no further treatment was required.

Case 2

This was a case of a five-year-old boy with ten days history of "boil" on the anterior chest wall near the left breast. The "boil" measured about 2cm in diameter with minimal hyperaemia. It was slightly warm to touch, firm, slightly indurated and mild to moderately tender. Because of the ten days history, which the parents considered long, and the fact that the boil was not showing any sign of ripening, the parents decided to apply palm oil to "hasten the ripening". Two days later a whitish fleshy "discharge" was noticed to be plugging the opening of the 'boil'. A gentle pressure to squeeze out the pus was made and a maggot came out instead. No bleeding occurred; the base of the wound was clean and was cleansed with an antiseptic lotion, no further treatment was given but the patient was to return five days later for review. The wound healed leaving only a tiny scar. The parents later discussed that their dog also had nodular lesions

**Correspondence*

from which maggots were expressed.

Discussion

The life cycle of *Cordylobia anthropophaga* has been described in standard textbooks. Several case reports spanning more than two decades have been made in Nigeria [6, 8—10], yet the diagnosis of cutaneous myiasis is still missed by most physician. These cases emphasise the fact that myiasis is a differential of furuncular swellings especially when such mass is not showing evidence of ripening. The infestation causes mild to moderate discomfort. The healing is uneventful after the removal of the maggot and the removal in itself do not require much expertise than a gentle squeeze around the furuncular swelling. However, as observed from the two cases above, application of oil (even local palmoil) or petroleum jelly (Vaseline[R]) appears to aid diagnosis and ease the removal of the maggot. The oil or jelly occludes the air supply through the spiracle to suffocate the larva and so the larva wriggles towards the outside to get more air[7]. In the process, the housing becomes loose around it or a part of the larva may actually protrude beyond the edge of the swelling, which was the situation in the second case; this enhances diagnosis and early removal. The uneventful healing that accompanies the larval removal is also characteristic of furuncular myiasis because of low degree of inflammation and tissue destruction observed.

The mode of acquisition of myiasis varies as established by the cases above. The first case was more likely through a cloth that was spread on contaminated sand, while the boy could have gotten it through close contacts with the family dog that has many myiasis. However, acquisition is also possible from playing in urine or feacal contaminated sand that contained eggs of the flies. The cases also revealed that any age group can be affected.

Conclusion

Myiasis should be considered as differential diagnosis of furuncle in a susceptible environment.

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Simultaneous post traumatic bilateral cervico-trochanteric femoral neck fractures in a child: A case report

***Hussa M. Gilban, Tarek M. Mirdad[1] and Matthew Jenyo**

Aseer Central Hospital, College of Medicine,
[1]Professor of Surgery, College of Medicine,
King Khalid University, Abha, Saudi Arabia,
P. O. Box 641, Abha Saudi Arabia.
E-mail: tarekmirdad@hotmail.com

Summary

A case is being presented of simultaneous bilateral cervico-trochanteric fractures of the neck of the femur in a five and a half-year-old girl following a road traffic accident (RTA). It is being presented because of its rarity; literature search to date revealing no previously reported similar case. The patient was managed by open reduction and internal fixation with a period of postoperative immobilization with a hip spica.

Key-words: *Cervico trochanteric, Neck fractures, Femoral, Traumatic children.*

Résumé

Il s'agit d'un cas des fractures simultanées bilatérales cervico-trochantérique du cou du fémur chez une fille âgée de 5 ans et demi à la suite d'un accident de la circulation routière (ACR). On présente ce cas parce qu'il est rare. Recherche de la littérature jusqu'ici avait indiqué aucun raport précédent semblable. La patient a été soigné à travers la réduction ouverte et fixation interne avec une durée d'immobilisation postopératoire avec un spica de la hanche.

Introduction

Femoral neck fractures in children are usually caused by high energy trauma and are often associated with multiple injuries with a high risk of avascular necrosis and non-union [1]. Seizure attacks [2,3], stress[4,5] and electric shock[6,7] have also been reported as causing fractures of the femoral neck. Simultaneous post-traumatic bilateral cervico-trochanteric fractures of the neck of the femur in a child have not been previously reported in the literature. However, there were two previously reported cases in the literature of bilateral transepiphyseal separation of the femoral neck; both of these cases following seizure attacks. One in a 4 ½ months old baby girl[2] and the other one in an 11 year old boy [3]. Bilateral femoral neck stress fractures in children were also reported in an adolescent runner and an eight year old girl [4,5]. Electric shock was also found responsible for bilateral fractures of femoral neck [6,7]. In this article, the classification described by Delbit and popularized by Colonna [8] was used, namely Type I: Transepiphyseal; Type II: Transcervical; Type III: Cervico-trochanteric and Type IV: Intertrochanteric.

Case report

A five and a half year old girl was involved in a road traffic accident resulting in bilateral closed and displaced cervico-trochanteric femoral neck fractures (Fig. 1). The patient also sustained a closed left tibial shaft fracture. This

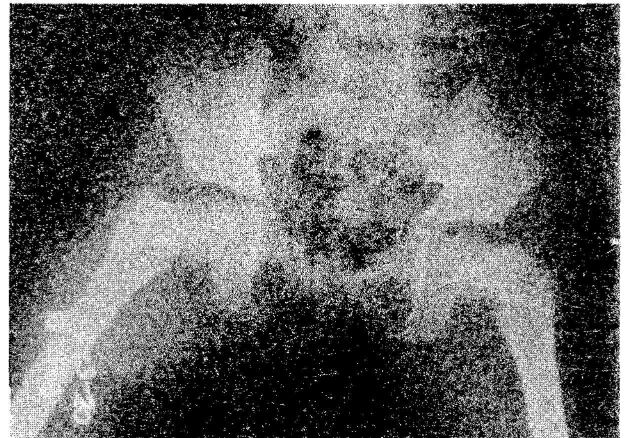

Fig. 1 *X-ray of the pelvis of the five and a half year old girl with bilateral cervico-trochanteric fracture of the neck of the femur.*

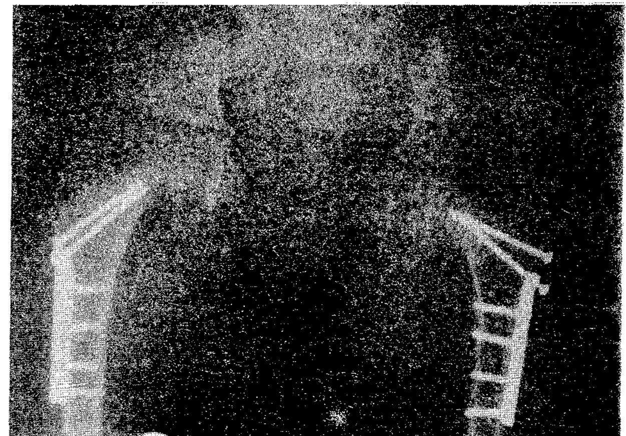

Fig. 2 *X-ray of the pelvis after closed reduction and internal fixation of femoral neck fractures.*

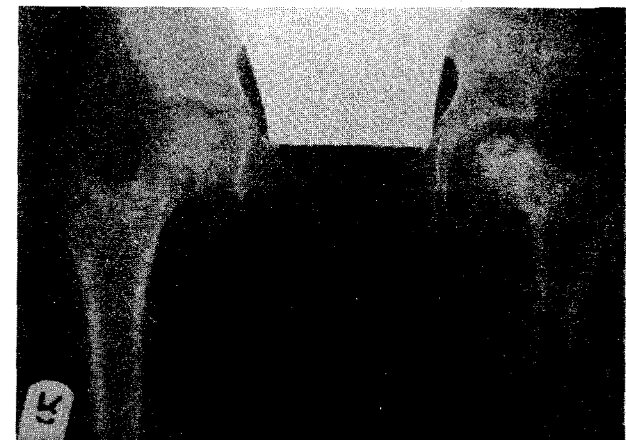

Fig. 3 *X-ray of the patient one year and four months after trauma (a) immediately before implants removal, and (b) immediately after the removal of implants. Avascular necrosis with varus deformity are obvious on the left side.*

* *Correspondence*

patient was referred to our institution from a peripheral hospital four days after the accident. Immediately, she had closed reduction and internal fixation of both femoral neck fractures. On each side a 4.0mm partially threaded cancellous screw, compressing the fracture but not crossing the growth plate of the femoral head, was used. The screw was incorporated in the proximal hole of a 3.5mm DCP side plate. Another 4.0mm cancellous screw was inserted proximal to the first screw for reinforcement and to prevent rotation at the fracture site (Fig. 2). This combination was the best set of implants available in our institution at the time. Post operatively, bilateral hip spica Plaster of Paris (POP) cast was applied. The cast was removed two months later; at that time there was good union on the right side; but delayed union was noticed on the left side. A one and a half hip spica cast was applied for two more months during which the fracture united. Then the child started to bear weight. Review after one year and 4 months showed that the left femoral head had undergone avascular necrosis (involving about 50% of the head) with varus deformity of the femoral neck. The plate and screws were removed from both the sides (Fig. 3). Clinically after removal of implants, the patient had mild limping favouring the left side.

Discussion

Healing of intra-capsular fractures of the femoral neck remains poor on account of poor or absent periosteum, bathing of the fracture site in synovial fluid, and precarious blood supply[1]. Although cervico-trochanteric fracture might be expected to behave like inter-trochanteric fracture as far as union is concerned, several cases of mal-union and non-union have been reported, one reason being absence of adequate posteromedial buttress [1]. This has prompted the use of a side plate to reinforce the fixation in this case.

In the case presented, possible reasons for the development of avascular necrosis and delayed union on the left side include: (i) extent of the initial insult on the left femoral neck (supported by the fact that the associated tibial fracture was also on that side), (ii) extent of displacement of the fracture and (iii) delay in fixation (the retinacular vessels could have been kinked or stretched by the displaced fragments for a long time).

From 10-15% of children with femoral neck fracture will develop complications over which the surgeon has no control[1]. In the series reported by Azouz et al., [9] avascular necrosis accounted for 13%, premature closure of epiphyseal plate 12%, varus deformity 8.3%, and non union 3.7%. While in the long follow-up study of Morsy[10] avascular necrosis occurred in 40%, premature physeal closure in 38%, coxa vara in 36%, non-union in 36%, arthritic changes in 34% and shortening in 55% of patients. Better results were obtained in undisplaced and anatomically reduced fractures.

The treatment in a child of this age should incorporate a hip spica immobilization as was carried out in this case[11]. The difficulty of closed reduction achieving anatomical position is well recognized[12] in femoral neck fractures in children and a degree of varus deformity has to be accepted as in the case reported here (Fig. 3). The delay in surgical procedure may however also contribute to the problem of development of varus deformity[13] as in the child presented. No differences in outcome have been observed however if the delay in operation is not longer than 6 hours[13].

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Bowen's disease: Report of a case in a Nigerian man

*** Husain Yahya and Abdullahi Mohammed**
**Dermatology Unit, Department of Medicine, Barau Dikko Specialist Hospital, P. O. Box 9727, Kaduna, Nigeria.*
Department of Pathology, Ahmadu Bello University Teaching Hospital, Zaria, Nigeria.
E-mail: husainyahya@hotmail.com

Summary

Bowen's disease (cutaneous squamous cell carcinoma in situ), like other cancers of the skin, is rare in black people – to our knowledge, only about 43 cases have been published in the medical literature. We report a 59-year old Nigerian man who presented with a five-year history of a mildly pruritic, slowly enlarging well-circumscribed plaque on the lower part of the anterior region of the chest on the right side. The lesion had an irregular crusted periphery and an atrophic hypopigmented centre. Histological examination confirmed a diagnosis of Bowen's disease. No predisposing factor was found to be relevant in this case - although he might have had brief occupational exposure to arsenic, it is unlikely that this was the cause of his disease. The published literature on Bowen's disease in blacks is briefly reviewed.

Key-words: ***Bowen's disease, Skin cancer blacks, Cutaneous malignancy, Arsenical cancers.***

Résumé

La maladie de Bowen (carcinome cellulaire cutané squameux in situ), comme d'autres cancers de la peau, est rare parmi les noirs - à notre connaissance, seul environ 43 cas ont été publiés dans la presse médicale. On signale le cas d'un vieux nigérian, de 59 ans, qui au bout cinq ans présente un problème de léger prurit, s'agrandissant lentement - la plaque circonscrite sur la partie inférieure de la région antérieure de la poitrine sur le côté droit. La lésion avait une périphérie irrégulièrement encroûtée et le centre atrophique hypo pigmenté. L'examen histologique a confirmé un diagnostic de la maladie de Bowen. Aucun facteur prédisposant n'a été trouvé pour être pertinent dans ce cas - bien qu'il ait pu avoir une brève exposition professionnelle à l'arsenic, il est peu probable que cela soit la cause de sa maladie. La documentation publiée sur la maladie de Bowen parmi les noirs est brièvement revue et corrigée.

Introduction

Bowen's disease (cutaneous squamous carcinoma in situ) is rare in black people – only about 43 cases have been reported in the medical literature. We report a case in a Nigerian man and briefly review the literature on the subject.

Case report

A 59-year old man presented to the dermatology clinic with a 5-year history of an occasionally mildly itchy, slowly enlarging lesion on the lower part of the anterior region of the chest on the right. He had worked as a forestry worker for 34 years until his retirement 6 years before presentation. During the first five years of his work, sodium arsenite had been used to poison some tree species but he denied using it

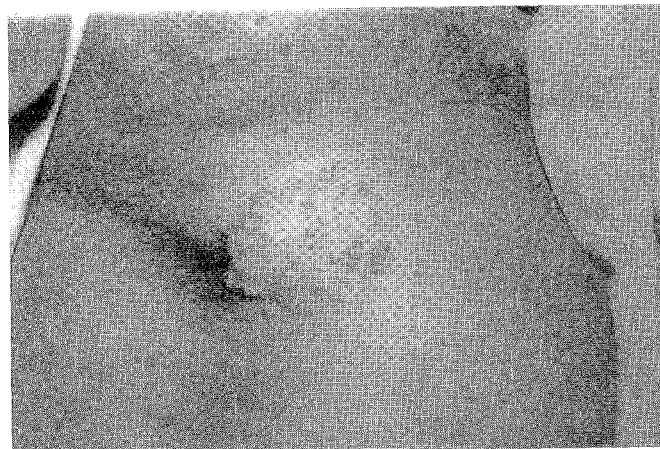

Fig. 1 *Photograph shows a well-circumscribed crusted plaque of Bowen's disease on the lower part of the chest.*

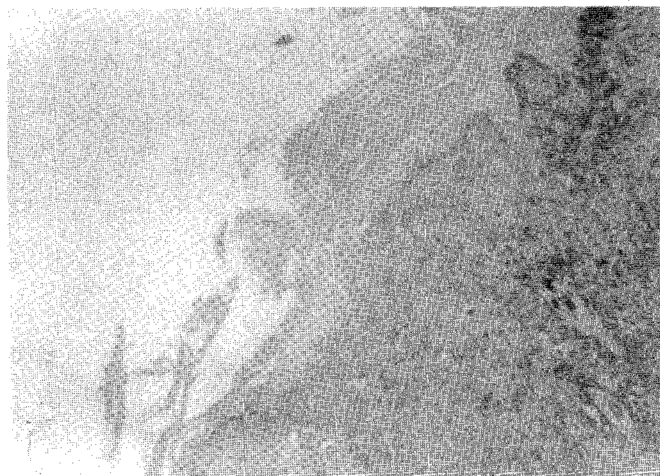

Fig. 2 *Histologic section of Bowen's disease. Note marked full thickness epidermal dysplasia characterized by nuclear pleomorphism, and loss of polarity of the keratinocytes. The dermo-epidermal junction is intact (H & E x 100).*

himself or coming in contact with it in any way. He also denied taking any medications containing arsenic. He had lived in many communities where well water was the only source of water. There was no history of long-term application of heat to the chest. He had well-controlled essential hypertension and type two diabetes mellitus and enjoyed good general health.

On examination, he had a well-circumscribed 4 cm by 5 cm plaque on the right side of the lower part of the anterior aspect of the chest (figure 1). The plaque had an irregular outline with a crusted periphery and a hypopigmented centre. The rest of the examination was normal. There were no other skin manifestations suggestive of chronic arsenic ingestion. Histological examination (figure 2) of a punch biopsy showed parakeratosis, acanthosis and broadening of the rete pegs. There was marked full thickness pleomorphism of

**Correspondence*

keratinocytes and hyperchromasia of nuclei with loss of polarity of cells. The dermis showed infiltrates of chronic inflammatory cells. The dermo-epidermal junction was intact. The lesion was subsequently excised with primary closure of the skin.

Comment

Bowen's disease is a form of intra-epidermal (in situ) squamous cell carcinoma and, like other pre-malignant skin conditions, is rare in black people. The largest series (21 lesions in 19 patients) was reported by Mora, Perniciaro and Lee in their retrospective study of skin cancer in black patients in New Orleans, United States, between 1948 and 1982.[1] Rosen and his colleagues reported 7 cases from Texas,[2] and Graham and Helwig reported that out of 155 cases of Bowen's disease, only 4 were black.[3] The rest of the cases were isolated single reports. We were able to find only six single reports of Bowen's disease from Black Africans.[4-9]. Our patient was treated for many years with topical and systemic antifungal agents and antibiotics without any improvement. Prompt referral to a dermatologist would have allowed differentiation of this condition from common skin problems seen in the tropics such as fungal and bacterial skin infections but would also have facilitated exclusion of chronic plaque psoriasis, discoid lupus erythematosus, and tuberculosis verrucosa cutis, conditions that might resemble Bowen's disease clinically.

Majority of the cases of Bowen's disease occurred in the seventh and eight decades although younger patients were also seen. Women were affected slightly more than men. Most cases of Bowen's disease in blacks occurred in non-sun exposed skin as in our patient. This contrasts with the disease in whites where lesions are found in sun-exposed parts of the body (head, neck, arms, leg in women). A Lesion on the palm has been reported[5]. Lesions were usually solitary although multiple lesions occurred in a few patients. The morphology of Bowen's disease was similar to those in other races although a fungating tumour of the anterior abdominal wall with histological feature of the disease was reported by Leibowitz et al.in a South African man.[7] This case was unusual, however, in also having features of basal cell carcinoma with sebaceous differentiation. There was also strong evidence of arsenic intoxication in this patient.

Chronic arsenic ingestion is a well known predisposing factor for Bowen's disease.[11] Although our patient may have had brief occupational arsenic exposure, there is no strong evidence that this was the cause of his disease: He had a single lesion (arsenical cancers are multiple),[11] and did not have other cutaneous features of arsenic intoxication such as diffuse generalized pigmentation or rain drop pigmentation or palmo-plantar keratoses, features that were found in up to 90% of patients with chronic exposure.[11] Moreover, arsenic ingestion was thought responsible for Bowen's disease in blacks in only five of the cases reported. Three patients had epidermodysplasia verruciformis,[4,6,8] a rare, lifelong generalized infection with human papilloma viruses characterized by the development of cutaneous carcinomas, often at an early age. Chronic application of heat, irritated seborrhoeic keratosis and lymphopathic strictures were thought responsible in three patients.[1] Most patients had no obvious predisposing factor.

The association of Bowen's disease and internal malignancy is disputed. Five of 19 of Mora's patients had an internal malignancy (diagnosis of Bowen's was made first in three patients) which included polycythemia vera and leukaemia, mycosis fungoides, and carcinomas of the large intestine, cervix and prostate[1]. Of the seven patients reported by Rosen, one developed adenocarcinoma of prostate at follow-up.[2] A meta-analysis of 12 studies has, however, found no significant association between Bowen's disease in general and internal malignancy.[13]

Treatment of Bowen's disease was principally by total excision and primary closure. Other modalities of treatment used included curettage and desiccation, cryotherapy and 5-Fluorouracil. Invasive disease and metastasis occurred in only a few patients.[1]

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An orbital masquerade syndrome: A case report

A. E. Omoti
Department of Ophthalmology, University of Benin Teaching Hospital, P. M. B. 1111, Benin City, Nigeria.
E-mail: afeomoti@yahoo.com

Summary

This report presents the case of a 20-year-old female who presented with features of right panophthalmitis with secondary orbital cellulitis masquerading as an orbital tumour. This presented a diagnostic difficulty to several ophthalmologists. An orbital ultrasound scan revealed an underlying orbital mass, which on histology was discovered to be a well differentiated invasive large cell keratinizing squamous cell carcinoma. This report further emphasizes the value of ultrasound scan in detecting orbital tumours.

Key-words: *Masquerade, Orbital, Syndrome.*

Résumé

Ce rapport présent le cas d'une femme âgée de 20 ans qui s'est présentée avec des symptômes de la panophtalmie du côté droite avec une cellulite orbitaire secondaire qui essaie de se faire passer pour une tumeur orbitaire. Ce phénomène produit une difficulté diagnostique pour plusieurs ophtalmogistes. Echographie orbitaire avait montré une masse orbitaire sous-jacent, dont l'histologie avait démontré d'être une grande Kératinisation cellule kératinisation squamouse cellule carcinome nettement différenciée. Ce rapport attire l'attention de plus sur la valeur d'échographie afin de détecter des tumeurs orbitaires.

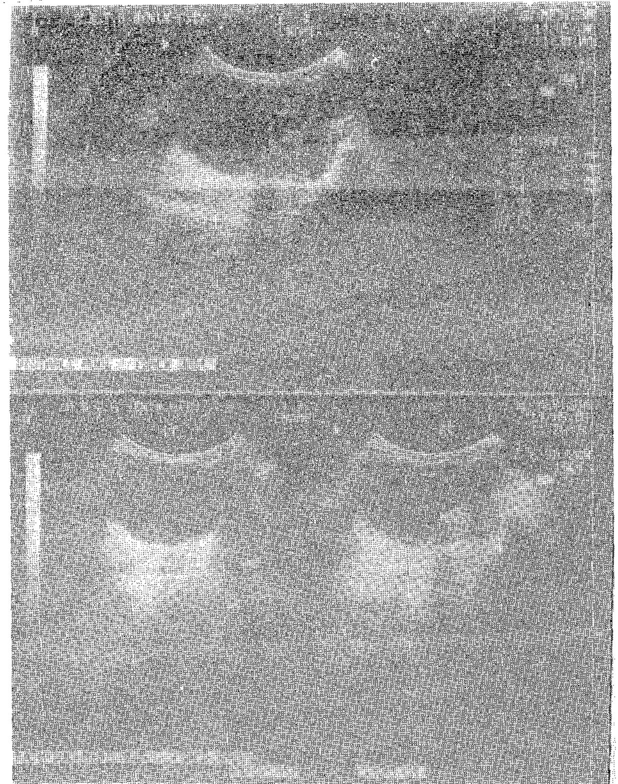

Fig. 1 *Orbital scan showing a right sided intra-orbital, extra-ocular mass.*

Introduction

The evaluation of neoplastic orbital lesions is an interdisciplinary concept and includes modern imaging techniques as well as rhinosurgical approaches to the orbit.[1] It is expected that orbital tumours, being space occupying lesions, will present with displacement of the eyeball or proptosis. However, several cases of unusual presentations have been reported. Ocular tumours have been shown to masquerade as amaurosis fugax,[2] orbital cellulitis,[3] an apparent subperiosteal abscess,[4] as an orbital apex syndrome,[5] or even as an eyeball in a patient whose eyeball was previously enucleated.[6]

These cases result in diagnostic difficulties and may cause delay in starting appropriate management. However, if modern imaging techniques such as three-dimensional ultrasound imaging,[7,8] computed tomography,[1,6,9] and magnetic resonance imaging,[1,5] are used, a lot of these diagnostic problems can be overcome.

In this report, a case of orbital squamous cell carcinoma masquerading as panophthalmitis with secondary orbital cellulitis is presented.

Case report

The patient is a 20-year-old female who presented to the eye clinic of the University of Benin Teaching Hospital, Benin-city on 3rd of April, 2004. She complained of redness and pain in the right eye of one year duration. There was associated tearing, slight discharge and photophobia. She developed visual loss in the right eye 6 months before presentation. About 4 months before presentation she started having recurrent bouts of fever associated with chills and rigors. A week before presentation she started having severe right sided throbbing headache and started talking irrationally. The patient had received several treatments without success.

General examination revealed no obvious abnormality. The visual acuity was no light perception in the right eye and 6/6 in the left eye. There was slight proptosis and ptosis in the right eye, limitation of ocular motility, periorbital swelling, ulceration of the lower lid margin, and purulent conjunctival discharge in the right eye. The conjunctiva was chemosed, the cornea was hazy and there was hypopyon inferiorly. The other structures could not be visualized in the right eye. The left eye was normal. An initial impression of panophthalmitis and secondary orbital cellulitis in the right eye was made.

She was started on I.V. ciprofloxacin 200mg 12hourly, I.M gentamicin 80mg 8hrly, I.V metronidazole 500mg 8hrly, gutt okacin 6hrly RE, gutt atropine 1% b.d. RE, oc chloramphenicol nocte RE, tabs cataflam 50mg b.d. and subconjunctivital injections of gentamicin daily for 5 days.

There was no significant improvement after 9 days. The cornea had developed a stromal abscess. By the tenth day, there was corneal perforation at the superonasal quadrant. It was decided to eviscerate the eye. An orbital ultrasound scan was done. This revealed an extrinsic indentation of the posterolateral margin of the right globe by a mixed echogenic

Correspondence

mass measuring 2.3 X 1.4cm (fig 1). The intraocular structures appeared normal. An impression of a right sided intraorbital mass was made. Enucleation of the right eye was then performed with excision biopsy of the mass. Findings at operation were necrosed and friable conjunctiva, a tense eyeball and an inferior intraorbital mass.

The histology revealed a malignant neoplastic lesion composed of clumps of epithelial cells with indistinct cell borders, containing pleomorphic hyperchromatic nuclei with prominent nucleoli. They were invading the loose myxocollagenous stroma in nests and cords. There were heavy infiltrates of chronic inflammatory cells especially plasma cells and macrophages which had ingested melanin pigments. Keratin pearls were present. A diagnosis of a well differentiated invasive large cell keratinizing squamous cell carcinoma was made.

The patient was discharged after 5 weeks on admission and to come to the eye clinic daily for dressing of the right eye. On one of those visits she complained of severe diarrhoea. She was then sent to the accident and emergency unit for management. Unfortunately she died about 24 hours after admission into the emergency unit. Autopsy could not be carried out because no consent was given.

Discussion

This patient presented a diagnostic and therapeutic dilemma to all the clinicians that managed her case. She was initially managed as a case of panophthalmitis and secondary orbital cellulitis. Her condition gradually got worse. Because of the unusual appearance of the conjunctiva and the general clinical picture, an orbital ultrasound scan was ordered which revealed the underlying tumour and changed the management plan. She was initially booked for an evisceration, which would have made biopsy impossible. This had to be changed to an enucleation. This report further emphasizes the value of the ultrasound scan in the diagnosis of underlying orbital tumours in suspicious cases.

It has been reported that orbital malignancies can present as acute infections.[3] The tumour itself could become infected or it may stimulate an inflammatory reaction especially when it undergoes necrosis.[3] This may be by the release of tumour necrosis factor (TNF). Neoplastic cells may even cause fever by the release of pyrogenic cytokines including interleukin-1, interleukin-6 and TNF.[10] Furthermore, antigens that elicit an immune response have been demonstrated in many human cancers.[11] These are broadly classified into tumour-specific-antigens, which are present only on tumour cells and tumour-associated antigens, which are present on tumour cells and also on some normal cells. These are able to stimulate both cell-mediated and humoral immunity, which have antitumour activity.

It is possible that there may have been an associated infection in this case. Culture samples from the enucleated globe did not reveal any growth. On the other hand, histology showed that the tumour had invaded the globe. The intraocular involvement could be responsible for the intraocular inflammation, which mimicked features of panophthalmitis while the orbital portion mimicked the features of orbital cellulitis.

The use of the B scan ultrasonography in this case greatly aided the diagnosis of an orbital tumour. The use of ultrasonography in the accurate diagnosis of ocular diseases has been previously reported.[12-14] Its use is becoming essential in developing countries like Nigeria where three-dimensional ultrasound scan, CT scanning and MRI are not readily available and are very expensive.[14]

Since early suspicion, diagnosis and treatment of intraorbital and intraocular malignancies offer the best chance for survival, ophthalmologists should consider the possibility of an orbital or ocular malignancy when managing unresolving cases of intraorbital or intraocular inflammation. Orbital imaging techniques are of great value in doubtful cases.

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Abstracts of the 45th Scientific Conference of West African College of Surgeons held in Cotonou-Benin - February, 2005

Changing knowledge, attitude and practice of Nigerian surgeons to HIV-infected persons and AIDS patients

C. A. Adebamowo, E. R. Ezeome, *A. J. Ajuwon and T. O. Ogundiran

*Division of Oncology, Department of Surgery, *Department of Preventive and Social Medicine, University College Hospital, Ibadan, Oyo State, Nigeria*

Summary

Background: The incidence of HIV infection and AIDS is rising in Nigeria. Surgeons are at risk of occupationally acquired infection as a result of intimate contact with the blood and body fluids of patients. This study set out to determine whether the knowledge, attitude and risk perception of Nigerian surgeons to HIV infection and AIDS has changed as the prevalence of HIV increased in the country.

Method: Self-administered questionnaire survey of surgeons and surgeons in training in 1997 and 2002.

Result: In 1997, parenteral exposure to patients' blood was reported as occurring 92.5 and 54.5% times respectively, and most respondents assessed their risk of becoming infected with HIV as being moderate at 1 - 5%. Majority of the respondents are not aware of the CDC guidelines on universal precautions against blood-borne pathogens. Most support a policy of routinely testing all surgical patients for HIV infection but 76.8% work in centers where there is no policy on parenteral exposure to patients' blood, and body fluids. Most (85.6%) do not routinely use all the protective measures advocated for the reduction of transmission of blood borne pathogens during surgery, with the majority ascribing this to non-availability. Most want surgeons to be the primary formulators of policy on HIV and surgery while not completely excluding other stakeholders.

Conclusion: We shall be updating the data on the risk perception, knowledge and attitude of Nigerian surgeons over the 5 years marked by increasing prevalence of HIV in Nigeria.

Thoracic surgery in HIV infected and AIDS patients: Fourteen years experience at the Walter Reed Army Medical Center, Washington DC and the Veterans Affairs Medical Center, Dayton Ohio, January 1991 - October 2004

Samuel A. Adebonojo

Chief, Surgical Service, Department of Veterans Affairs Center, Dayton, Ohio; Professor of Surgery, Wright State University School of Medicine, Dayton, Ohio, USA. Associate Programme Director, Surgical Residency Training Wright State University School of Medicine, Dayton, Ohio.

Summary

Patients infected with HIV are at great risk of developing a variety of infectious and malignant pleuro-pulmonary diseases. Consequently, the thoracic surgeon is often called upon to assist in the diagnosis and management of these patients. Such requests are made alter failure of obtaining definitive diagnosis, months of treatment failure or emergency consultations for management of thoracic complications and associated diseases.

We report our experience with two hundred and eleven (211) patients with HIV-infection and AIDS syndrome who were referred to the Cardiothoracic Surgery Service at the Walter Reed Army Medical Center (WRAMC), Washington, DC and the Veterans Affairs Medical Center (VAMC), Dayton Ohio from January 1991 to October 2004 for diagnostic procedure and management of HIV-induced pulmonary complications.

Eighty-four patients were treated at WRAMC, Washington DC from 1991 to 1996 and 127 patients at Dayton VAMC from 1997 to 2004. There were 196 males and 15 females with age ranging from 21 to 68 years, median age of 48 years and mean age of 45 + 1 - 5 years. Bronchoscopy with bronchoalveolar lavage (BAL) and transbronchial biopsies were performed in one hundred and eighty patients (85%) and sixty-one patients (29%) underwent biopsy for diagnosis of the lung and/or pleura via video assisted thoracoscopy surgery (VATS) or by limited open lung biopsy for diagnosis of various pulmonary nodules or infiltrates. Fifteen patients (7%) underwent Cervical Mediastinal Exploration (CME) while a left parasternal thoracoscopy (Chamberlain procedure) was peformed in eight patients (0.4%) for biopsy of mediastinal and aorto-pulmonary window lymph nodes. Nine patients underwent thoracotomy, six for wedge resection of pulmonary nodules and three had lobectomy for stage 1A Adenocarcinoma of the lung.

Eighty-four (40%) were treated for spontaneous pneumothorax; thirty-three by chest tube drainage while twenty-six of these eighty-four patients (31%) were treated by VATS resection of apical blebs with talc pleurodesis. Seven patients had limited thoracotomy for resection of large bullous disease. Talc pleurodesis via VATS was found to be successful in achieving pleurodesis in 58% while chest tube with or without pleurodesis was unsuccessful in 70% of the cases. Seventeen patients with non-tuberculous pleural effusion and forty-five patients with empyema thoracis were treated with chest tube drainage and antibiotics with limited success. The diagnosis of rive patients with Kaposi sarcoma was made by lung biopsy via VATS, while the diagnosis of four other patients with Burkitt's lymphoma was made by Chamberlain procedure. Three patients with stage 1A Adenocarcinoma of the lung were treated by lobectomy with intention to cure without post-operative complications.

Although the incidence of lung cancer in patients with HIV-infection/AIDS is unknown and their correlation is yet unclear and undefined, we recommend that HIV positive

patients with early stage non-small cell lung cancer, who are otherwise candidate for surgery, should undergo surgical resection followed by anti-retroviral therapy. The management of these patients is challenging and in some cases disappointing, however, the reward of occasional successful outcome is gratifying. The fear of HIV transmission from patient to the surgeon is very low and unjustified and no patient should be denied surgical intervention based on this fear.

Les manifestations orl au cours du VIH/SIDA

M. Gomina, W. Adjibabi, I. Bio-Tchane, Y. Y. C. Hunkpe, B. Yehouessi, S. Vodoufie et Medji Alp

Résumé

Les manifestations de la région ORL sont fréquentes au cours du VIH/SIDA. Les auteurs ont réalisé une étude prospective transversale du 1er Octobre 2003 au 31 Mars 2004 dont le but était d'analyser les aspects épidémiologiques et cliniques de ces manifestations. Les résultats ont montré que sur 45 patients qui avaient présenté des manifestations ORL évocatrices de l'infection par le VIH, 26 ont été séropositifs soit 57,8%. La tranche d'âge de 20 à 49 ans a été la plus touchée (84,6%) les âges extremes étaient de 3 ans et 54 ans, l'âge moyen de 33 ans. 57,7% étaient des sujets le sexe masculin et 42,3% de sexe féminin. La transmission a été hétérosexuelle dans 80,8%.

Les aspects cliniques ont été dominés par les manifestations infectieuses dont les otites (18,4%) les rhinosinusites (18,4%) et les candidoses oropharyngées (13.5%). Les manifestations tumorales ont été représentées par les adénopathies cervicales (10,8%) et la parotidomégalie (8,2%). La paralysie faciale périphérique a été retrouvée dans 10,8% des cas.

Mots clés: ***ORL, VIH/SIDA***

Knowledge, attitudes and practice of oral and maxillofacial surgeons in management of the HIV sero-positive patient.

U. E. Amanyeiwe and S. O. Ajike

Maxillo facial Unit (MFU), Ahmadu Bello University Teaching Hospital, Kaduna, Nigeria.
E-mail: mfuugo@yahoo.com

Summary

Purpose: The aim of this study was to identify the unique challenges encountered by the oral and maxillofacial surgeons (OMFS) managing seropositive patients in a resource limited settings, with little or no access to neither sustainable antiretroviral (ARV) therapy nor affordable/available post exposure prophylaxis (PEP) for the surgeon.

Methods: 78 surgeons in oral and maxillofacial practice. 10 centers in the six geo-political zones of Nigeria were randomly tested. A questionnaire was used to determine their knowledge, attitudes and practices (KAP) in the use of universal precautions, post exposure prophylaxis and on ethics of management for the seropositive patient.

Results: Ages of surgeons analyzed ranged from 26 - 62 years (mean = 35.1), Consultants were the most (n = 32, 41%), residents (n = 28, 35.9%) and interns (n= 18, 23.1%). Significant difference was noted in the KAP of surgeons with over or less than 15 years post graduation experience.

Conclusions: There is a need for surgeons to empower themselves with scientifically correct knowledge of HIV post exposure chemoprophylaxis as well as strict practice of universal precautions and finally, implementation of ethically sound and enabling policies that govern the surgical management of the seropositive patient as a means of ensuring appropriate care for these patients while protecting the surgeons.

Key-words: ***HIV, Prophylaxis, Maxillofacial, Surgery***

Epidemiologie du VIH/SIDA en reanimation au centre national hospitalier et universitaire de Cotonou

D. Atchade, A. R. Aguemon et P. C. Hounkpre

Résumé

Le VIH/SIDA est admis aujourd'hui comme le plus grande pandémie. Le but de présent travail est d'évaluer à travers l'épidémiologie, la place de cette pandémie dans le service de réanimation du Centre National Hospitalier et Universitaire Hubert Koutoukou Maga de Cotonou (CNHU-HKM). Durant une période de dix ans allant du premier novembre 1994 au 31 octobre 2004, nous avons répertorié parmi toutes les admissions, tous les cas de VIH/SIDA diagnostiques avant ou au cours de leur hospitalisation en réanimation.

11.122 patients ont été admis pendant la période d'étude; parmi ces patients, 33 cas de VIH/SIDA ont été recensés, soit un taux de prévalence de 0,3%. Il s'agissait exclusivement d'adultes des deux sexes âgés en moyenne de 35 ans. Les hommes étaient plus nombreux, 21 contre 12 femmes (soit 63,64% contre 36,36%) avec une sex-ratio égale à 2. L'âge moyen était de 41 ans chez les hommes avec les extrêmes de 21 et 56 ans. Les femmes étaient plus jeunes, l'âge moyen étant de 27 ans avec les extrêmes de 16 et 47 ans. 22 patients étaient décédés (soit un taux de mortalité de 66%) au cours de l'hospitalisation qui était d'une durée moyenne de 03 jours.

Les auteurs ont fait des suggestions en vue de l'amélioration de la prise en charge des cas de HIV/SIDA dans le service de réanimation.

Mots cles: ***VIH/SIDA, Reanimation, Mortalité, Cotonou.***

Epidemiology of HIV/AIDS in the intensive care unit of the national teaching hospital of Cotonou

D. Atchade, A. R. Aguemon and P - Hounkpe

Summary

The HIV/AIDS is admitted today like die largest pandemy. The goal of the present work is to value through the epidemiology, the place of this pandemy in the intensive care unit of the National Teaching Hospital Hubert Koutoukou Maga of Cotonou (CNHU-HKM). During a ten year period from November 1st, 1994 to October 31, 2004, we listed among all admissions, all cases of HIV/AIDS diagnosed before or during their hospitalization in the intensive care unit.

11.122 patients have been admitted during the period of survey; among these patients, 33 cases of HIV/AIDS have been selected; the rate of prevalence was 0,3%. They were exclusively about two aged sex adults in mean of 36 years. Men were more numerous, 21 versus 12 women (63,64%) versus 36,36%) with a sex-ratio of 2. The middle age was 41 years for men with extremes of 21 and 56 years. Women were younger, the middle age being 27 years with extremes of 16 and 47 years. The mortality rate was 66% during the hospitalization that was a middle length of 03 days.

The authors made suggestions in the way to improve the treatment of HIV/AIDS in the intensive care unit.

Key-words: ***HIV/AIDS, Intensive care unit, Mortality, Cotonou.***

The resuscitation of newborns of HIV positive mothers

B. O. I. Onajin-Obembe

Department of Anesthesiology, Faculty of Clinical Sciences, College of Health Sciences, University of Port Harcourt, Nigeria.

Summary

The HIV seroprevalence of parturients in Nigeria is 5%, in Rivers State it is 6.6% while it is 7% in the University of Port Harcourt Teaching Hospital. Most of these parturients are counseled to have caesarean section, which has a lesser risk of mother-to-child transmission (MTCT) compared with vaginal delivery. Appropriate care of the neonate is thus required in order to prevent MTCT while precautions must be taken by all attending medical personnel not only during caesarean section but also during resuscitation of the neonate.

This paper highlights the possible risks, management considerations of neonates of HIV positive mothers delivered by caesarean section, and also the precautions required in such circumstances. It also takes a look at the available accessories for resuscitation of the at risk neonate.

Candiduria in HIV infected patients in Yaounde, Cameroon

J. P. Lohoue, F. F. Angwafo III, F. A. Kechia and N. D. Noukeu

Mycology laboratory, Urologic surgery, Research assistant, Faculty of Medicine and Biomedical Sciences, the University of Yaounde I, Cameroon.

Summary

Human immuno-deficiency virus causes a complex immune disorder that favours opportunistic infections amongst which candidiases, caused by fungi of the genus Candida, are most frequent. Although commonplace and benign in the immuno-competent patient, candiduria can pose a diagnostic and therapeutic dilemma especially in the immuno-suppressed patient. We set out to detect Candida species in the urine of patients living with HIV, and correlate the presence of candiduria and CD4 counts. 38 of 105 (36.2%) subjects consenting to participate in this study had candiduria. 71% of the cases were asymtomatic. Patients with stage C HIV infection and a CD4 count less than 200 lymphocytes/mm3 had candiduria. Its presence heralded an advanced immuno-suppressed state of AIDS. In resource poor communities, where viral load and CD4 count determination are expensive, candiduria may serve as one of the indicators for ARV therapy. We recommend routine detection of candiduria in this high risk group of HIV/AIDS patients.

The management of musculoskeletal sepsis in HIV carriers

Summary

Objective: The purpose of this paper was to report our method of management in musculoskeletal sepsis associate with HW carnage.

Methods: We carried out a 3 years prospective management protocol of musculoskeletal sepsis in HW carriers. The diagnosis of sepsis was based on conventional criteria. HW carnage was screened by ELISA test and confirmed by Western Blot technique. The immune depressed, mildly immune depressed, or severely immune depressed as they respectively had more than 500, 500 to 200 or less than 200 cells per ml. Sepsis was treated by surgical debridement followed by targeted long course antibiotic therapy. All severely immune depressed patients and some mildly immune depressed with any AIDS related symptoms underwent additional standard antiretroviral therapy.

Results: 31 HIV carriers were observed for musculoskeletal sepsis, their mean age was 33 years and the sex ratio 1.58. 32.25% of the infections were chronic osteomyelitis, 38.70% were septic arthritis, 25.80% were soft tissue disease and 01 1e patient presented a severe leg complication of Burulis Ulcer. 38.70% pf patients were classified as severely immune depressed (five osteomyelitis, four arthritis, two soft tissue infection and the burulis ulcer patient), 25.80% as mildly immune depressed (two osteomyelitis, four arthritis, and two soft tissue infection) and 35.48% as non immune depressed (three osteomyelitis, six arthritis, and two soft tissue infection). The micro-organisms involved were not specific. Fifteen patients were managed conventionally while sixteen other had the usual treatment associated to anti retroviral therapy. The immediate outcome was good in twenty nine patients after a mean hospital stay of five weeks. In two cases of septic arthritis of the knee, a second debridement was needed, due to persistent leaking; but they all finally dried. Three months after discharge, a last one with humeral

osteomyelitis presented a low flow fistula which got dried after a revision sequestrectomy on ambulatory setting. After one year, none of the patients complained of any sign related to reactivation of the infection.
Conclusion: There is no evidence of HIV carnage is by itself a high risk factor of musculo-skeletal sepsis; however, in other to improve their outcome, the management of patients should assess their immune statue, based on CD4 lymphocytes count. Non immune depressed patients should be treated as any other and nothing more, severely immune depressed should have additive standard antiretroviral treatment. For those who are mildly immune depressed, the election of antiretroviral therapy should depend on the presence of one or more AIDS related signs.

Key-words: *Musculosequeletal - sepsis - HIV - Treatment.*

Ocular manifestations of HIV/AIDS at LUTH, Lagos

F. B. Akinsola, M. B. Hassan, O. Soneye-Vaughan, Rotimi - Samuel, A. Majekodunmi, A. O. Adefule-Ositelu and A. O. Onakoya

Summary
Objective: To determine the incidence and the commonest type of Ocular manifestations of HIV/AIDS seen at LUTH.
Methodology: An interviewer administered questionnaire followed by ocular examination of randomly selected HIV positive patients attending LUTH, Hematology HIV/AIDS Clinic was clone and the results analysed with a computer based Epi info 2002.
Result: A total of 108 patients with 26 eyes were seen. 107 of them (99.1%) were in the middle age group while only 1 (0.9%) was elderly. The ages ranges from 22 years to 67 years with the majority in the 30-39 years age group (38.0%). Fifty-eight (53.7%) were male while 50(46.3%) were female giving a ratio of ninety-five (88.0%) patients had normal visual acuity while 13(12.0%) had low vision. None of them was found to be blind. Twenty-four patients (22.2%) had ocular manifestations with 12 patients having anterior segment and another 12 with posterior segment lesions.

The various lesions observed were Kaposis sarcoma-4 (3.7%), Herpes zoster ophthalmicus - 2(1.9%), Uveitis - 2(1.9%), Vitritis -1 (0.9%), Choroidopathy -2 (1.9%), Cotton-wool spot - 20 (.9%), CMV Retinitis- 1 (0.9%) and Optic atrophy-1(0.9%).
Conclusion: Only 9(8.3%) of the twenty four cases with ocular manifestations could be attributed to HIV/AIDS.

It is recommended that ocular assessment of all patients with HIV/AIDS be done on a regular basis to detect these ocular lesions and manage them accordingly to prevent visual disability.

A new era in the management of burn trauma at the Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana

***Pius Agbenorku, Joseph Akpaloo, David Yalley and Akwesi Appiah**

(Clinical Pharmacy, KATH) Plastic & Burns Surgery Unit - Department of Surgery, Komfo Anokye Teaching Hospital (KATH), School of Medical Sciences Kwame Nkrumah University of Science and Technology, P. O. Box 448, KNUST, Kumasi, Ghana.
E-mail: pimagben@yahoo.com

Summary

The management of burns at KATH has taken a new trend since the establishment of a new burns ward in February 2001. For the past 3 years patients have received better care in their treatment regimes. The burns ward, which has a capacity of only 7 beds, was initially meants for acture and severe burns patients, hence, the name Burns Intensive Care Unit (BICU).

The BICU was a good collaboration between KATH and a Scottish NGO-International Reconstructive Plastic Surgery (Ghana) Project. Another organization that helped in the BICU establishment was the Rotary Club International through a matching grant that was requested by the Kumasi Rotary Club, in Kumasi, Ghana and Claverhouse Rotary Club in Dundee, Scotland.

Since its inception on February 1, 2001 till 31 January 2004 (a three-year period) the BICU managed 527 cases of various degrees and severities of burns.

Key-words: *Burn Trauma, Management, Mortality.*

Delayed closure of ventral abdomen hernias after severe trauma

[1]A. Peter Ekeh and Lisa Patterson

[1]*Managing Director Mary McCarthy, MD, Department of Surgery, Wright State University School of Medicine, Dayton, Ohio, United States of America*
Ekeh, Peter<Peter.Ekeh@wright.edu>

Summary
Introduction: Closure of abdominal incisions following laparotomy for severe abdominal trauma cannot always be achieved at initial admission. Factors such as bowel edema may preclude the ability to restore abdominal wall integrity. Delayed closure, months after the traumatic encounter, becomes necessary in such cases. We reviewed our experience with delayed closure of anterior abdominal wall defects at a US Level 1 Trauma Center.
Patients and methods: All patients who underwent damage control trauma laparotomies with subsequent «Open abdomen» that could not be closed primarily or secondarily at the initial hospitalization were prospectively followed between January 1999 and November 2004 at Miami Valley Hospital, Dayton, Ohio. Demographic data-age, gender, length of stay, injury severity, type of repair and complications were all noted.
Results: Over the 5 years period, 19 patients underwent delayed repair their planned ventral hernia defect (17males, 2 females). Mean age at initial admission was 38.4 years.

Temporary skin grafting was performed in 18 of 19 patients. Average time to skin grafting was 47.7 days. The mean time from initial laparatomy to definitive repair was 179 days (range 92 to 330). The methods used for the abdominal wall reconstruction were primary closure (6 patients - 32%), myofascial advancement flaps (6 patients - 32%), myofascial advancement flaps with mesh (4 patients - 21%) and prosthetic mesh (3 patients - 15%). There were no mortalities from repair. Postoperative complications were seen in 9 patients (47%). These included superficial wound infection (21%)! mesh infection (105%) and incisional hernias (105%).

Conclusion: The management of large ventral hernia's and their subsequent closure after major trauma presents unique challenges. Definitive closure within 6 months of the traumatic injury is possible in most patients. Primary closure and myofascial advancement flaps are the most common methods utilized. Complications are common following these procedures.

The position of the vermiform appendix in Ghana

***J. N. A. Clegg-Lamptey[1], H. Armah[2], S. B. Naaeder[1] and N. A. Adu-Aryee[1]**

Departments of Surgery[1] and Pathology[2], University of Ghana Medical School and Korle Bu Teaching Hospital, P. O. Box 4236, Accra, Ghana.

E-mail: clegglamptey@hotmail.com

Summary

Background: Appendicitis is one of the commonest general surgical emergencies in Accra, Ghana. It is a condition that may mimic many other conditions. The position of the appendix, which is available, may influence the presenting symptoms and course or acute appendicitis. It is also possible that the position of the inflamed appendix may not accurately reflect its normal position. The position of the normal appendix in Ghana is, however, not known.

Methods: The position of the normal appendix was determined in 1358 consecutive autopsies performed by one of the authors at the Korle Bu Teaching Hospital during a three-year period. The positions of 323 inflamed appendices at appendicectomy were also determined during the same period.

Results: In the autopsy the retrocaecal position was commonest (914 [673%]). The other positions were pelvic (294 [21.6%]), preileal (66[4.9%]), postileal (51 [38%]), and paracaecal (33[2,4%]). These positions did not differ in males or females. The position of 323 inflamed appendices determined during the same period were as follows: retrocaecal (183 [567%]), pelvic (66{20.4%]), preileal (20[6.2%]), postileal (15[46%) and paracaecal (39[121%]).

Conclusion: The position of the normal appendix in Ghana differs slightly from that stated in Western literature, file position not responsible for the difference in incidence of appendicitis between the sexes in Accra. The retrocaecal position appears to be less prone to inflammation in Ghanaians.

Résumé

Introduction: l'Appendicite est une des urgences chirugicales, générales et les plus communes dans Accra, Ghana. C'est une condition qui peut imiter beaucoup de conditions autres. La position de l'annexe, qui est variable, peut influencer 'es symptômes et le cours présents d'appendicite aiguë. C'est aussi possible que la position de l'annexe enflammée ne peut pas refléter précisément sa position normale. La position de l'annexe nomale dans Ghana est, cependant, pas connu.

Méthode: La position de j'annexe normale a été déterminée dans 1358 autopsies consécutives exécutées par un des auteurs au Korle Bu Enseignant l'Hôpital pendant une période de trois ans. Les positions de 323 annexes enflammées à appendicectomie ont été aussi déterminées pendant la période pareille.

Résultats: Dans l'autopsie la position de retrocaecal était la plus commune (914 [673%]). Les autres positions étaient pelviennes (294{21.6%]), preileal (66[4.9%]), postileal (51[3,8%]) et paracaecal (33[24%]). Ces positions n'ont pas différé dans les mâles ou les femelles. Les positions de 323 annexes enflammées ont déterminé pendant la période pareille étaient comme suit: retrocaecal (183[56.7%]), pelvien (66[20.4%]), preileal (20[6.2%]), postileal (15[4.6%]) et paracaecal (39[12.1%]).

Conclusion: La position de l'annexe normale dans Ghana diffère légèrement de qu'affirmé dans la littérature de l'ouest. La position de retrocaecal à l'air d'être moins encline à l'inflammation dans Ghanéens.

Awareness of transplants and reaction of potential donors of amniotic membrane to serological screening for hepatitis, syphilis and HIV

C. T. Ntim-Amponsah

Ophthalmology Unit, Dept., of Surgery, University of Ghana Medical School, P. O. Box GP 4236 Accra, Ghana

E-mail: cntimamp@ug.edu.gh

Summary

Objective: To find out awareness of tissue/organ transplant and willingness to comply to serological screening for hepatitis, syphilis and HIV.

Method: Consecutive patients admitted for elective Caesarian section at the Korle Bu Teaching Hospital were recruited after informed consent.

A structured questionnaire and in-depth interviews were used to collect information.

Results

Transplant: 50 subjects were recruited. 33 were aware of organ/tissue transplant and 17 had never heard of transplant. 10/50 were aware of kidney transplant, 5/50 of heart, 3/50 of eye (closed ended); others were skin 5/50, liver 2/50 (open ended). 19 out of the 33 also mentioned blood as tissue transplanted. 2/33 also were aware of amniotic membrane when asked specifically.

Serological tests: 40 were willing to have 2 tests (before delivery and 6 months postpartum)
- 5 would do the test before delivery but would not return for a repeat after 6 months
- 43/45 would like to know the results of the test but not the remaining 2
- 2 would not mind serological tests but not for target diseases (I would not mind having HIV if the husband would have it done too)
- 3 will not donate placenta (1 on religious grounds and the others for no reason)

Conclusion: Most potential donors are aware of transplant surgery, would be willing to donate placenta and also undergo serological screening. The few who would not comply raise important questions calling for a closer look at issues with husbands involvement and testing 6 months post partum.

La conscience de transplantations et la réaction de donateurs potentiels de membrane amniotique vers l'analyse sérologique pour l'hépatite, syphilis et le VIH

C. T. de Ntim-Amponsah,

La section d'Ophtalmologie, le Département de Chirurgie, l'Université de Ohana Ecole Médicale, P. O. G P de Boîte 4236 E-mail: de Ghana d'Accra, cntimamP@ug.edu.gh

Résumé

L'Objectif de: découvrir la conscience de transplantations de tissu! organe et la complaisance pour conformer à l'analyse sérologique pour l'hépatite, syphilis et le VIH.

La méthode: les malades consécutifs admis pour la section Césarien facultative à l'Hôpital d'Enseignement de Korle-Bu ont été recruté après le consentement informé. Un questionnaire structuré, et entretients approfondis, ont été utilisés pour recueillir l'information.

Les resultats

Transplantent

50 sujets ont été recrutés.

33 étaient conscients de transplantation d'organe/tissu et 17 n'avaient jamais entendu parler de la transplantation.

10/50 était conscient de transplantation de rein, 5/50 de coeur, 3/50 d'oeil (limité); les autres étaient des peaux 5/50, le foie 2/50 (illimité).

19 du 33 - sang aussi mentionné comme tissu a transplanté

2/33 étaient aussi conscient de membrane amniotique quand demandée en particulier.

Essai sérologique
- 40 voulaient avoir 2 tests (avant que l'accouchement et 6 mois post-partum)
- 5 ferait le test avant que l'accouchement mais ne se retournerait pas pour un répété apres 6 mois
- 43/45 aimerait savoir les résultats du test mais 2 ne veulent pas savoir
- 2 n'aurait pas des objections contre des tests sérologiques mais pas pour les maladies de cible (1 n'aurait pas des objections contre le test de VIH si le mari le ferait aussi)
- 3 ne fera pas don du placenta (1 par raison de religion et les autres pour aucune raison)

Conclusion: La plupart des donateurs potentiels sont conscients de chirurgie de transplantation, voudrait faire don du placenta et aussi subir à des tests sérologique. Le peu de qui ne conformerait pas posent des questions importantes qui demandent un examen plus minutieux des problèmes avec l'engagement de maris et les tests 6 mois post-partum.

L'extraction extracapsulaire du cristallin avec implantation intraoculaire: L'experience du cnhu de Cotonou

C. Doutetien, S. Tchabi, I. Sounouvou, L. Vehouessi, J. Deguenon et S. K. Bassabi

Résumé

But: Les auteurs ont déterminé la fréquence d'utilisation de l'extraction extracapsulaire de cristallin dans leurs activités chirurgicales, décrit les complications per et post-opératoires rencontrées et analyse les résultats fonctionnels obtenus à court et moyen terme.

Fistules anales et infection à VIH au centre hospitalier de Libraville

R. Nguema-MVE et [1]L. Bayonne Manou

Chirurgien Maître-assistant à la faculté de Médecine et des Sciences de la Santé B. P. 8513 Libreville Tel. 37 25 3 E-mail: nguemvé@yahoo.com.fr.Gabon

[1]Chirurgien au Centre Hospitalier de Libreville BP 2238 Libreville Gabon.

Résumé

Les fistules anales sont des suppurations péri-anales chroniques. Leur fréquence a augmenté ces dernières années à cause de l'infection à VIH-SIDA. L'association à cette infection retarde considérablement la cicatrisation par rapport aux sujets saints.

Les fistules chez les malades atteints du VIH-SIDA sont le plus souvent complexes, ce qui aggrave leur pronostic chez ces patients immunodéprimés.

Au moment du diagnostic de fistule anale, seulement 1/3 des patients sont au courant ou acceptent d'être au courant de leur statut immunologique. Parmi ce 1/3 des patients, moins de la moitié sont sous traitement anti-rétroviral.

Des 2/3 restant, adresses systématiquement au centre de traitement ambulatoire (C. T. A.) la moitié est suivie correctement et voit leur guérison évoluer plus rapidement. Un tiers ne peut prendre la traitement pour contre indication et l'autre tiers refuse de s'y soumettre. Devant la fréquence élevée d'infections a VIH-SIDA chez les malades présentant une fistule anale, nous préconisons un dépistage systématique chez ces malades avant toute décision thérapeutique.

Bilan des activites chirurgicales dans un nouvel hopital au nord de l'Afrique occidentale

C. T. Bathily, A. Hmeyade, H. Ideidiby, S. A. Mogueya et J. Uroz-Tristan ,

Centre Hospitalier Nouadhibou, R. I. Mauritanie

Summary

Les auteurs présentent les activités chirurgicales réalisées au Centre Hospitalier de Nouadhibou, nouvel hopital le plus au nord au niveau de l'Afrique occidentale, fruit de la Coopération Hispano-Mauritanienne. Dans ce Centre l'activité chirurgicale est intégrale en raison de son environement medical pauvre.

Toutes les chirurgies y sont réalisées et en particulier la composante pediatrique, parent pauvre de la sous région africaine.

On a intervenu chez plus de 600 malades adultes et enfants; les résultats sont encourageants avec une morbidité et une mortalite tres moindres.

On présente les données avec une très riche iconographie.

La hernie de spiegel au Gabon. aspects epidemiologiques et cliniques

***F. K. Diallo-Owono, S. Mbamendame, M. Ndong Assapi, M. M. Kaba, J - B Mbourou, Mba J. Ndzigue, C. Diane et F. Ondo N'dong**

Service de Chirurgie Thoracique Vasculaire viscerate (Pr. Ondo N'dong), Foundation Jeanne Ebori, Libreville, Gabon
E-mail: ondondongf@yahoo.fr.

Résumé

Objectif: Montre des aspects épidémiologiques et cliniques de la Hernie de Spiegel au Gabon, à partir de 24 observations récentes d'une pathologie rare dans la littérature médicale.
Méthodologie: Vingt quatre cas de Hernies de Spiegel ont été colligés de Janvier 1985 à Janvier 1996. Ils provenaient du Service de Chirurgie Thoracique Vasculaire Viscérale de La Fondation Jeanne Ebori (11 cas), de l'Hôpital provincial de Koula-Moutou (6 cas), de l'Hôpital Schweitzer de Lambaréné (6 cas), et du Service de Chirurgie Viscérale du Centre Hospitalier de Libreville (1 cas).
Résultats: Sur le plan épidémiologique, le sexe féminin était prédominant (15/9). L'âge moyen des patients était de 60 ans. 75% des patients provenaient de trois des neuf provinces du pays.

Sur le plan clinique, la hernia se présentait sous sa forme interstitielle classique dans 14 cas, et était associée dans 12 cas à une autre localisation herniaire. Le traitement chirurgical a concerné 23 patients. Un décès a été observé dans les suites à distance, avec un suivi moyen de 6 mois.
Conclusion: La hernié de Spiegel apparâit avec une grande fréquence au Gabon, par rapport aux autres pays. Des études anatomiques, histologiques ou embryologiques de la paroi abdominale seraient intéressantes à réaliser, afin d'expliquer la fréquence de cette pathologie au Gabon.

Spiegel's hernia in Gabon: Epidemiological and clinical aspects

***F. K. Diallo-Owono, S. Mbamendame, M. Ndong Assapi, M. M. Kaba, J. B. Mbourou, Mba J. Ndzigue, C. Diane and F. Ondo N'dong**

Thoracic Vascular and Visceral Surgery Unit (Prof. Ondo N'dong). Fondation Jeanne Ebori, Libreville, Gabon
E-mail: ondondongf@yahoo.fr

Summary

Objective: To show epidemiological and clinical aspects of Spiegelian hernia in Gabon, a propos of 24 recent cases of pathology rarely described in medical literature.
Methods: 24 cases of Spiegelian hernia have been collected from January 1985 to January 1996. They were observed in the Thoracic Vascular Surgery Unit of la Fondation Jeanne Ebori (11 cases), the Regional Hospital of Koula-Moutou (6 cases), the Schweitzer Hospital of Lambarene (6 cases) and the Viceral Surgery unit of Centre Hospitalier de Libreville (1 case).

Les urgences Orl au centre hospitalier universitaire de Ouagadougou: A propos de 124 cas

K. Ouoba, O. M. Dao, A. Elola, I. Ouedraogo, Y. Guebre, B. Ouedraogo et E. Bationo,

Résumé

Les auteurs rapportent 124 cas d'urgences ORL pris en charge au Service ORL du CHU de Ouagadougou pour en souligner les particularites épidémiologiques, cliniques et thérapeutiques.
Sur le plan épidémiologique: 89 malades (71,77%) ont été recus lors de la garde et 35 (28,23%) aux heures ouvrables.

Les enfants ont été les plus nombreux avec 38,70 % des cas. Les cultivateurs, les artisans et les ouvriers qui formaient la frange la plus pauvre de la population étaient les plus nombreux avec 70% des cas.
Au plan clinique et thérapeutique: Notre série a été enregistrées 48 cas d'urgences vraies (38,7%).
Les corps étrangers ORL et la pathologie infectieuse étaient les plus grands pourvoyeurs d'urgences ORL : respectivement 17,74% et 15,32% des cas. Parmi nos 124 malades, 77(62,10%) ont été hospitalisés tandis que 47 (37,90%) ont été suivi à titre ambulatoire. 63 malades ont bénéficié d'une intervention chirurgicale en urgence.

L'évolution a été favourable chez 119 malades (95.97%). Nous avons enregistré 5 décès (4.03%).

Dans le contexte de pauvreté de nos populations et de sous équipement de nos structures sanitaires, le pronostic des urgences ORL est toujours sévere. Il faut alors sans aucun doute l'accent sur la formation du personnel l'équipe-

ment des services et la sensibilisation des populations.

Mots clés: ***Urgences ORL, Épidémiologie, Clinique, Traitement***

ENT Emergency in the academic hospitable centre of Ouagadougou

Pr Kampadilemba Ouoba

Etude effectuée au Centre Hospitalier Universitaire Yalgado Ouedraogo B P 7021, Ouagadougou Burkina Faso.
E-mail: ouabakpd@hotmail.com

Summary

The authors return 124 cases of ENT emergencies took in charge in the ENT Department of the academic hospital center of Ouagadougou to underline the particularities of it. ***On the epidemiological plan:*** 89 patients (71,77%) have been received at the time of the care and 35 (28,235) at the tractable hours. The children were the most numerous with 38,7% of the cases. The farmers, the craftsmen and the workers who formed the poorest fringe of the population were the most numerous with 70% of the cases.
On a clinical and therapeutic level: Our set has registered 48 cases of true emergencies that gathered 3S, 7%. ENT foreign bodies and the infectious pathology were the biggest supplies of ENT emergencies: respectively 17,74% and 15,32% of the cases.

Among our 124 patients, 77(62,10%) have been hospitalized while 47(37,90%) have been followed to ambulatory title. 63 patients benefitted from a surgical intervention in emergency. The evolution was favourable at 119 patients (95,97%). We recorded 5 deaths (4.03%).

In the context of poverty of our population and coins equipment of our sanitary structures, the prognosis of the ENT emergencies 15 always stem. It is necessary to put the accent on the staffs formation, the equipment of the services and the sensitization of the populations then undoubtedly.

Key-words: ***ENT emergencies, Epidemiology, Clinic, Treatment.***

Tumeurs du palais: Bilan de 50 cas en ORL au CNHU de Cotonou

B. Vignikin-Yehouessi, M. Flatin, S. J. Vodouche, Y. Y. C. Hounkpe et Alp Medji

Service d'ORL et de Chirurgie cervico faciale CNHU-Cotonou 01 B. P. 386 Rep de Benin

Résumé

Du l Juillet 1981 au 30 Juin 2004, soit en 23 ans, 50 tumeurs du palasi avec confirmation histologique, ont été reçues et traitées en ORL au CNHU de Cotonou. Nous en avons dénombré en moyenne 2 a 3 cas par an. Les sujets de sexe féminin ont constitué les 60% de la série contre 40% de sujets de sexe masculin. Le principal motif de consultation a été la constatation d'une voussure du palais. Le diamètre de la tumeur a dépassé 4 - 6 centimètres dans 60%. L'examen anatomopathologique a confirmé une tumeur bénigne dans 54% et une tumeur maligne dans 46%. Sur le plan thérapeutique, 95% ont reçu un traitement chirurgical une exérèse de la tumeur avec ou sans curage ganglionnaire, associée à un traitement médical d'appoint. L'évolution a été favourable avec des résultats satisfaisants en cas de tumeur bénigne. Les cancers ont donné des résultats décevants.

Mots-clés: ***Tumeur, Palais, Bilan.***

Palate tumors: Point of 50 cases in ent at CNHU of Cotonou

Summary

From July 1, 1981 to June 30, 2004, about twenty three years, 50 palate tumors with histological confirmation have been received and treated at CNHU of Cotonou. We have counted average two to three cases per year. Female have represented 60% of the series against 40% for male. The main reason for consultation has been the finding of a tumor of palate. The diameter of the tumor is more than 4 - 6 centimeters in 60% of cases. The anatomo-pathologic research has confirmed a benin tumor in 54% and malignant tumor in 46%. On therapeutic field, 95% of patients have received a surgical treatment an ablation of the tumor with or without curage of nodes, associated with medical treatment. The evolution was favourable with satisfactory results in cases of benin tumor. The cancers have given bad resultants.

Key-words: ***Tumor, Palate, Point of***

Le diabete gestationnel en consultation interet d'un depistage systematique au centre de sante de Kolewondy - Conakry

A.B. Diallo*, T. SY*, Y. Diallo*, N. M. Balde, F8 Diallo*, H. Yolande***, N. Keita*** et M. S. Diallo***

**Service de Gynaecologie Obstetrique I. Deen CHU de Conakry*
***Service d'endocrinologie Donka CHU de Conakry*
Service de Gynecologie Obstetrique Donka CHU de Conakry
E-mail: sytelly@yahoo.fr

Résumé

Le Diabete Gestationnel (DG) est défini comme un trouble de la tolérance glucidique de gravité variable survenant ou diagnostiqué pour la première fois pendant la grossesse, quelle que soit la prise en charge nécessaire, et quelle que soit son évolution dans le post-partum, le dépistage basé uniquement sur les facteurs de risque laisserait échapper pres de la moitié de Diabète Gestationnel.

L'absence de données sur la fréquence de cette pathologie en Guinée a conduit les auteurs a entreprendre cette étude

pour déterminer cette fréquence et la méthode simple pour effectuer ce dépistage. L'étude a révélé une forte prévalence dans la zone urbaine de Conakry, soit 16,78% en consultation prénatale sur 548 tests réalisés, une prédominance de ménagères, sans instruction, mariées avec un âge moyen de 28,7 ± 6,5 ans une parité moyenne de 2, 11 ± 1, 9 accouchement un âge gestationnel moyen de 27, 1 ± 5,6SA.

La période optimale de dépistage se situe entre 24 et 28 SA. Mais devant la présence de facteurs de risque le dépistage peut se faire vers la 16ème semaine d'aménorrhée ou à la fin du dernier trimestre s'il existe des signes d'appeal.

Dans tous les cas le dépistage du Diabète Gestationnel doit être systématique en consultation prénatale au risque d'occulter certaines patientes dont la proportion peut être importante.

Mots clés: ***Diabète gestationnel, Dépistage***

Soins obstetricaux d'urgence et pronostic des hemorragie graves du poser partum immediat

A. Lokossou, E. Tawo, R. X. Perrin
(Hôpital Mère et Enfant Lagune (HOMEL),
S. Adisso et T. Houndeffo
(Clinique Universitaire de ces formes graves des hemorragies obstetricales et la

Résumé

Introduction: Les hémorragies du post-partum immédiat constituent la première cause de mortalité maternelle dans le monde. L'amélioration du pronostic reste toujours tributaire de la précocité du diagnostic et de la qualité des soins obstétricaux d'urgence (SOU) dans les maternités de référence. Le but de notre étude était d'analyser les facteurs pronostiques de ces formes graves des hémorragies obstétricales et la disponibilité des SOU

Objectifs: Déterminer la fréquence globale des hémorragies du post-partum immédiat, évaluer celle des formes graves et analyser la prise en charge dans une maternité de référence nationale.

Patientes et méthode: Il s'agissait d'une étude cohorte rétrospective réalisé sur deux ans soit du 01101/01 au 31112/02 à Hôpital de la Mère et de l'Enfant Lagune (HOMEL) de Cotonou.

Résultats et conclusion: Nous avons colligé 12.671 accounchements et 483 cas d'hémorragies du post-partum immédiat, soit 3,81% des accouchements; 193 cas (40%) étaient des hémorragies obstétricales graves. Les étiologies recensées au cours de (étude étaient par ordre de fréquence fa rétention placentaie (406%), l'atonie utérine (13.6%), la rupture utérine (12,6%) et les déchirures du col (12,4%). La prise en charge thérapeutique des formes graves comportait essentiellement une réanimation médicale associée à une transfusion dans 22,7% des cas l'hystérectomie d'hémostase dans 19 cas (9,8%). 43 cas de décès maternels ont été recensés soit un taux de létalité globale de 8,9% dont 13 au décours d'une hystérectomie d'hémostase les principaux facteurs prédictifs de l'issue défavourable dans ces formes graves des hémorragies du post-partum immédiat étaient: le retard au transfert des maternités périphériques, les problèmes de disponibilité en sang et dérivés sanguins, le délai supérieur ou égal à deux heures entre l'admission et la décision d'hystérectomie d'hémostate.

Mots clés: ***Post-partum immediat, Hémorragies graves, Qualité des soins obstétricaux d'urgence.***

Emergency obstetric cares and prognosis of immediate serious post parturition haemorrhages

A. Lokossou, E. Tawo, R. X. Perrin
(Hopital Mere et Enfant Lagune (HOMEL)
S. Adisso and T. Houndeffo
(Clinique Universitaire de Gynecologie et d'Obstetrique (GUGO), Cotonou

Summary

Introduction: Immediate post parturition haemorrhages constitute the first maternal mortality aetiology in the world. The improvement of the prognosis always remain tributary of the precocity of the diagnosis and the quality of the emergency obstetric cares in the reference motherhoods. The goal of our survey was to analyze the prognosis factors of the serious obstetric hemorrhages and the availability of I I w emergency obstetric cares.

Objectives: To determine global frequency of immediate postparturition haemorrhages, B value the one of the serious shapes and to analyse the treatment in a national refence motherhood.

Patients and method: It was about a retrospective survey achieved from 01/01/01 to 31 hôspital de la Mère et de 'Enfant Lagune (HOMEL) of Cotonou.

Results and conclusion: During the survey, we collected a total of 12671 childbirths and 483 cases of immediate post parturition haemorrhages, either 3,81% of the childbirths; 193 cases (40%) were serious obstetric hemorrhages. The retained placenta (40,6%), uterine atony (13,6%), uterine rupture (12,6%) and the rips of the cervix (12,4%) were the main aetiologies. Serious immediate postparturition haemorrhages treatment included mainly a medical resuscitation associated to a blood transfusion in 22,7% of the cases and haemostasis hysterectomy in 19 cases (9,8%). 43 cases of maternal death have been counted either a rate of global ethnically of 8,9% of which 13 were occurred after a haemostasis hysterectomy. Predictive main factors of the unfavourable issue of these serious immediate postparturition haemorrhages were the peripheral motherhood reference, the availability in blood and blood derivatives, the delay superior or equal to two hours between the admission and the decision of haemostasis hysterectomy.

Key-words: ***Immediate post parturition, Serious haemorrhages, Quality of emergency obstetric cares.***

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Maternal mortality at the Princess Christian Maternity Hospital Freetown October 2002 - October 2003 on the ground analysis

Mike Kamara

Consultant Obstetrician and Gynaecologist, PCM Hospital, Flinders University, South Australia

Summary

This study was meant to investigate the actual maternal death situation on the ground at the Princess Christian Maternal Hospital the national Women's referral hospital in Sierra Leone. The hospital is situated in the capital city and is supposed to be better staffed in terms of skilled attendance and other facilities compared to district or provincial hospitals. The study looked critically at the service delivery at this hospital. It highlights the main causes of admission, main causes of maternal death, failures of service delivery and possible reasons for such failures[11, 14, 15, 19].

The hospital had in the period (October 2002 - 2003) 1, 535 total delivery of which 1440 were live deliveries out of this total live deliveries, there were 95 maternal death. All the end recommendations were made for a better way forward if maternal death could be reduced or prevented where this may be possible.

Déterminants de la mortalité maternelle à l'hôpital de zone de Kandi de 2002 à 2004

F. Dossou, M. Gbossekou Sokpon, S. Videgla, S. Bio Moussa, M. Agani, I. Dossou Dagba et A. Yebadokpo[1]

Hopital de Zone, BP 31, Kandi and [1]Zone sanitaire Kandi Gogounon Ségbana, BP 31 Kandi

Résumé

Une étude des décès maternels survenus à l'hôpital de zone de Kandi pendant années 2002 à 2004 a permis d'observer un taux de mortalité maternelle hospitalière de 1.6% et d'en relever les causes. Les 65 femmes décédées au cours de la période d'étude a l'hôpital de zone de Kandi pour une cause déterminée ou aggravée par la grossesse sont en majorité référées des formations sanitaires périphériques (60,7%). Elles sont plus souvent d'ethnie Peulh (29,5%) que Bariba (16,4%), Dendi (6,6%) ou Boo (6,6%). La plupart des décès ont lieu pendant la grossesse (42,6%) ou dans le post-partum immédiat (31,1%). Les décès ont pour étiologies principales les hémorragies avec anémie aiguë (31,1%), les syndromes vasculo-rénaux dont l'éclampsie (21,3%) et les maladies générales telles que le paludisme grave, et la méningite cérébro-spinale (8,2%). Ces différents taux ne sont pas toujours superposables à ceux de la littérature.

HIV and pseudo ectopic pregnancy syndrome: A report of some cases omilabus

G. O. Ajayi *, **

*Department of Microbiology, College of Medicine, University of Lagos, *Prenatal diagnosis and therapy Centre, **Department of Obstetrics and Gynecology, College of Medicine, University of Lagos.*

Summary

Recently, HIV infection in males and females have been shown to the complicated with endocrinopathy (Ajayi 2003). We present cases of female patients who were presented with the history of amenorrhea, spotting and positive pregnancy test leading to emergency laparatomy with no evidence of tubal pregnancy but HIV seropositivity at surgery.

These findings further show that proper screening for HIV seropositivity should be ordered for routine y at Accident and Emergency room. Positive pregnancy test (qualitative) is not enough to justify surgery.

Study of the obstetric outcome of pregnant women subjected to domestic violence

N. Ameh, S. O. Shittu and M. A. Abdul

Department of Obstetrics and Gynecology, Ahmadu Bello University Teaching Hospital, Zaria, Nigeria

Summary

Objective: To determine the prevalence of Domestic Violence and relationships to adverse obstetric outcome amongst pregnant women who deliver at the Ahmadu Bello University teaching hospital, Zaira.

Method: A cross sectional study involving 310 women who delivered at the labour ward. Questionnaires were administered to these women by the author to obtain their sociodemographic characteristics and obstetric outcome in relationship to Domestic Violence.

Results: The prevalence of Domestic Violence was 28.4%. There was positive relationship between Domestic Violence in Pregnancy, non-booking and poor attendance to Antenatal clinic.

Conclusion: Domestic Violence was high amongst parturient at Ahmadu Bello University Teaching Hospital Zaria and non-booking for and poor attendance to the antenatal clinic were significant factors to it.

Increasing access to assisted conception in West Africa

O. F. Giwa-Osagie, B. Kayode, J. Osaghae, T. Aro and T. Sorwa

Advanced Fertility Clinic, Omni Medical Centre, 18, Boyle Street, Onikan, Lagos, Nigeria. E-mail: giosagie@infoweb.abs.net

Summary

Assisted Conception Techniques such as In Vitro Fertilization (IVF), ICSI, gamete donation have been established in the management of infertility during the last 25 years. Denise Brown the first baby by IVF was delivered in the UK in 1978. Giwa-Osagie, Ashiru and Abisogun at Lagos University Teaching Hospital, Lagos, reported the first pregnancy from IVF in West, East and Central Africa in 1984 and had a live delivery from IVF in 1989. In the 1990s other teams reported success with IVF and related techniques in Nigeria, Ghana, Togo, Cameroun, Zimbabwe, Senegal and more recently in Kenya. There are now 7 IVF centers in Nigeria, two in Ghana, two in Cameroun for example. The focus must now move to improving results in IVF in West Africa, where the best pregnancy rates are between 15 - 25% per embryo transfer, and in improving access of the people to the technique.

Some reasons for the proper results in West Africa include uterine factors, quality of gases, and age of patients. Access to assisted conception can be improved by reducing costs, use of simple incubators, sharing embryologists, bulk purchasing and pooling of information and equipment. Experts in the Subregion need to focus on these matters for the good of the patients.

Manifestations buccales et therapie preventive non anti-retro virale chez le sujet VIH positif

G. E. Crezoit, M. Koffi, T. P. Attobra, O. A. D. Ory, B. Harring[1] and S. Gadegbeku[1]

Départment de Stomatologie et Chirurgie Maxillo-faciale Université de Bouaké 27 BP 529, Abidjan 27,
[1]Service de Stomatologie et Chirurgie Maxillo-faciale, CHU de Cocody, BPV 13, Abidjan (Cote d'Ivoire)
E-mail: crezoit@yahoo.fr

Résumé

Introduction: Le coût élevé de l'anti-retroviraux (ARV), malgré les interventions de la communauté internationale, limite leur généralisation à tous les sujets séropositifs. Si bien qu'en Afrique, de nombreux patients demeurent sous traitement préventif primaire non anti retroviral (non ARV).

Objectifs: De cette étude étaient de déterminer la fréquence des manifestations buccales de l'infection à VIH chez des patients sous traitement préventif primaire non ARV, d'identifier leurs formes anatomo-cliniques et d'observer leur évolution clinique.

Matériel et méthodes: Il s'agissait d'une étude prospective, réalisée du janvier 2001 au 30 juin 2002 à l'hôpital du jour de Bouaké. Elle a concerné 753 patients séropositifs, dont 288 ont été retenus. Ceux-ci comprenaient 183 (63,54%) sujets de genre féminin et 105 (36,46%) de genre masculin (sex-ratio = 1,74). Leur âge variait de 9 à 58 ans (âge moyen = 32.05 ans).

Résultats: Les manifestations buccales de l'infection à VIH ont été observées chez 38,25% de sujets. Les lésions retrouvées ont été la leucoplasie chevelue (73,96%). La candidose érythémateuse (57,29%), la gingivite (8,33%), la candidose pseudo-membraneuse, la chéilite angulaire et le sarcome de Kaposi (3,13% chacune) et les lésions buccales herpétiformes (2,08%). Le sérotype des patients se répartissait VIH 1 (68,40%), VH2 (11, 11%) et VIH 1 + VIH 2(20,49%). En dehors du sarcome de Kaposi, toutes les formes anatomo-cliniques ont eu une évolution favourable.

Discussion: Les manifestations buccales de l'infection à VIH ont été peu fréquentes chez les sujets séropositifs sous traitement préventif primaire non ARV, à l'instar de ceux qui sont sous ARV. Les formes anatomo-cliniques des lesions étaient dominées par la leucoplasie chevelue et les candidoses, dont l'association a été fréquente. Leur évolution a été parallèle, si bien que l'on pourrait émettre l'hypothèse du rôle de co-facteur que joueraient les candidoses dans l'apparition de la leucoplasie chevelue au cours de l'évolution de l'infection a VIH.

Conclusion: La thérapie préventive reste essentielle chez les sujets séropositifs. La non disponibilité des ARV à grande échelle en Afrique impose de maintenir les traitements préventifs primaires non ARV qui permettent aussi une réduction drastique des infections opportunistes.

Mots clés: ***Manifestations buccales, Infection a VIH, Antirétroviral (ARV), Non antirétroviral (NARV).***

Oral manifestations of HIV infection and preventive non anti-retroviral therapy in HIV-positive patient

Summary

Introduction: The high cost of anti-retroviral therapy (ART), despite the intervention of the international community, limits its generalization to all HIV-seropositive patients. So many patients in Africa under primary preventive non anti-retroviral therapy (NART).

Objectives: To determine the prevalence of oral manifestations in HIV-seropositive patients on primary preventive non anti-retroviral therapy, then, to identify the anatomo-clinical aspects and to observe their clinical evolution.

Material and methods: This prospective study has been realised from January 1st, 2001 to June, 30th, 2002, at the day Hospital of Bouaké. It concerned 753 HIV-seropositive patients, but 288 have been selected. The selected group consisted of 183 (63,54%) female patients and 105 (36,46%) male patients (sex-ratio, 1,74). Their age ranged from 9 to 58 years (average age = 32,05).

Results: The prevalence of oral manifestations in HIV-seropositive patients on non anti-retroviral therapy was 38,25%. The lesions detected were oral hairy leukoplakia (73,96%), erythematous candidiasis (57,29%, gingivitis

(8,33%). Pseudomembraneous candidiasis and angular cheilitis were each noted in 3,13%. Oral Kaposi's sarcoma and oral herpetic lesions were observed respectively in 3,13% and 2,08% of the cases. The serotype of these patients was HIV-1 in 68,40% cases, HIV-2 in 11, 11% and HIV - 1 + HIV-2 in 20,49%. The clinical evolution has been a success in 80,33% for bacterial oral lesions, 69,96% for oral hairy leukoplakia and 50% for the other viral manifestations. All the cases of Kaposi's sarcoma have shown an unfavourable evolution.
Discussion: Oral manifestation of HIV showed a low prevalence in HIV seropositive patients on non anti-retroviral therapy. The oral lesions detected most frequently included oral hairy leukoplakia and oral candidiasis. But both have been frequently associated. Their clinical evolution has been the same, so the hypothesis that oral candidiasis would have a rule of a cofactor in oral hairy leukoplakia's apparition would be considered.
Conclusion: The preventive therapy is essential for HIV-seropositive patients. Although the anti-retroviral therapy is not available for all of them in Africa, the prevention by non antiretroviral therapy still has an important place because it reduces drastically the prevalence of oral manifestations of HIV infection.

Key-words: *Oral manifestations, HIV infection, Anti-retroviral therapy, Non antiretroviral therapy*

Apnee obstructive du sommeil et chirurgie ortnognatique: A propos de deux cas cliniques et revue de la litterature

B. Ouattara, G. K. Aka, B. Harding-Kaba, K. R. Kouakou et S. Gadegbeku

Résumé

L'apnée du sommeil est une effection très invalidante, de par son retentissement général sur l'organisme du sujet.

Plusieurs traitements sont proposés avec des résultats plus on moins satisfaisants, selon je siège de l'obturation et certaines caractéristiques psychosomatiques des patients. L'objectif de ce travail est de montrer à travers deux cas cliniques, le caractère multidisciplinaire de la prise en charge de l'apnée obstructive du sommeil et surtout la place qu'y occupe la chirurgie orthognatigue.

Mots cles: *Apnee obstructive, Sommeil, Chirurgie orthognatigue*

Obstructive apnea of the sleep and orthognatic surgery: about two clinical cases and review of the literature

B. Ouattara, G. K. Aka, B. Harding-Kaba, K. R. Kouakou and S. Gadegbeku

Summary

The sleep apnea is a very incapacitating affection, by its general repercussion on the organism of the pat ent.

Several treatments are proposed with the more satisfactory results, according to the seat of the obstruction and some psychosomatic features of patients.

The objective of this work is to show through two clinical cases, the multidisciplinary character in the treatment of the sleep obstructive apnea and especially the place of orthognatic surgery.

Reno-colic fistula in a young male patient with HIV/AIDS

L. Cordon-Harris

College of Medicine and Allied Health Sciences University of Sierra Leone, Freetown, Sierra Leone

Summary

A Fistula between the kidney and the UT is very uncommon. The Reno-Colic type is the best known, with the process normally originating from the kidney and very rarely from the colon. One such case with origin from the colon is described in a 30 year-old corporal confirmed HIV positive a year ago. Ultrasound, IVU and Barium Enema were used to diagnose this Reno-colic fistula secondary to an uncommon colonic cause.

Life-saving endo-urologic procedures for patients on renal replacement therapy at the Yaounde General Hospital, Cameroon

Fru F. Angwafo II, Divine E. Eyong-Eta and Gloria E. Ashutantang

Faculty of Medicine and Biomedical Sciences. The University of Yaounde I Cameroon

Summary

Obstructive uropathy often progresses to nephropathy and eventually to end stage renal disease in resource poor communities. The underlying cause is often the failure of the primary care system to detect either congenital or acquired causes of obstructive uropathy before the patients get to life-saving dialysis. The diagnosis of urinary obstruction was confirmed on ultrasonography.

24 patients presented in extremis; with failed kidneys, in clinical sepsis and for metabolic acidosis, and thus were unfit for definitive corrective surgery of the obstructive anomaly. They were offered urinary diversion. When it was possible a non-stented or a catheterfree diversion was fashioned. However, in the upper tracts, because this was not always desirable and possible, we resorted to internal diversion with indwelling double stents.

All patients recovered renal function, 10 recovered permanent normal renal function, 8 were stable in renal insufficiency without dialysis and 6 succumbed to end stage renal disease.

Whereas the advantages of minimally invasive endourologic surgery have been demonstrated elsewhere, experience in resource poor areas of Sub-Saharan African (SSA) are yet to be documented. Given the economic and social burden of hemodialysis, our experience show that endourology in resource poor areas can save lives as it prevents terminal renal loss.

Les fistules urogenitales au chu souro sanou de Bobo Dioulasso: Aspects epidemiologiques, anatomocliniques et therapeutiques: A propos de 57 cas opérés en deux ans.

***T. Kambou, T. A. Ouattara, B. Zango, M. Bambara[1], B. Dao[1] and D. Sano[2]**

Service d'urologie, CHU, Sanou Bobo-Dioulasso, Burkina Faso, [1]Service de gynéco obstétrique, CHU Sanou Souro Bobo-Dioulasso, Burkina Faso, [2]Département de chirurgie UFR-SDS Université de Ouagadougou

E-mail: timotheekambou'<tkarnbou@hotmail.com

Résumé

Objectif: Faite le bilan de la prise en charge des fistules urogénitales dans le service d'urologie du CHUSS de Bobo-Dioulasso (Burkina Faso).

Méthode: Etude descriptive, prospective portant sur 24 mois et incluant 57 patientes opérées de fistules urogénitales. Ces patientes étaient interrogées et examinées avant l'intervention; elles étaient ensuite suivies au cours de leur hospitalisation et revues à un et trois mois. Une fiche de collecte de données était remplie par patiente à toutes les étapes. Ces données ont été saisies et analysées sur micro-ordinateur à l'aide du logiciel Epi info version 6.04.

Résultats: L'âge moyen de nos patientes était de 28,14 ans. Elles provenaient généralement du milieu rural. Le motif de consultation était la perte involontaire et permanente des urines par le vagin. L'orifice fistuleux souvent unique, était surtout de siège trigonal (40,40%) ou urethrocervical (24,6%).

La voie d'abord la plus utilisée, était la voie basse transvaginale (61,4%). Le procédé de cure utilisé était celui du dédoublement suture avec ou sans apport d'un greffon pédiculé. Les suites operatoires ont été simples dans l'ensemble. Le taux de succès global était de 73,70% avec un recul minimum de trois mois. Un décès a été enregistré.

Conclusion: Grave problème de santé publique de par ces conséquences physiques et psychosociales, la fistule urogénitale obstétricale reste encore assez fréquente au Burkina Faso, seul un programme ambitieux incluant le volet préventif, curatif et éducatif est à même de venir a bout de ce fléau.

Mots-cles: ***Fistules uro-génitales, Cure, Prévention, Fuites urinaires***

The significance of urogenital tuberculosis HIV: Some observations in the management of urogenital TB in Zaria

N. H. Mbibu, H. Y. Maitma, A. Ajakpe and A. Bello

Background: Urogenital TB has not till recently been a rare presentation of extra pulmonary TB. There is recent evidence of a rise in incidence of both extra and pulmonary TB following infection with HIV aids. Its usually difficult to diagnose intrapulmonary TB and usually difficult to eradicate with treatment with routine regimes for pulmonary TB. There is a recent increase in incidence among patients with HIV in patients we have diagnosed with HIV.

Materials and methods: We studied 2199 specimens of patients presenting to the urology clinic at the ABUTH. 40 patients who had urogenital TB where analysed.

Results: All patients presented with nonspecific UUT symptoms and were screened by urine AFB, Mantoux, ESR, Cystoscopy and IVU. All were screened for HIV. 10 were positive with no other stigmata of HIV.

Conclusions: The most useful diagnostic test for UGT is isolation of Mycobacterium Tuberculosis in urine. The incidence of TB urine HIV is increasing and it may be useful to add urine AFB in our screening of the HIV patient and vice versa.

Relative rates and features of musculoskeletal complications in adult sicklers

***J. Bahebeck, R. Atangana, A. Techa, M. Monny Lobe, T. Kingue, M. A. Sosso and P. Hohhmeyer**

BP 25095 Messa- Yaounde, Cameroun

E-mail: jbahebeck@yahoo.fr.

Summary

The purpose of this study was to prospectively look for the relative rates and features of musculoskeletal complications in a sample of adults homozygous SS sicklers in Yaounde.

During a 3 year period, known homozygous SS sicklers aged sixteen or more years, with a suspicion or evidence of motor system disease, including leg ulcer, were consecutively investigated. They systematically benefited of complete medical history, clinical examination, full blood count, C-reactive protein, standard X-ray of the area of complain, and, when necessary, pus analysis and a CT scan. Those with no definite diagnosis were excluded.

The sample was made of eighty four patients aged sixteen to fifty one years old, for a mean value of twenty two and a sex ratio of 0.75. Four (4.5%) of them were aged above forty. Thirty five (41.6%) presented fifty aseptic osteonecrosis, which were located in the hips in twenty five cases (50%), in the lumber spine in twenty cases (40%), in humeral head in four cases (8%) and in the talar body in a single case. The hip necrosis were of grade 1 in 6 cases, grade 2 in four, grade 3 in eleven and terminal in four. Multiple sites of necrosis were observed in six patients. Nineteen (22.6%) of the sicklers came on with thirty six malleolar ulcers, more frequently in males (sex ratio: 5) and twenty eight (78%) located in the medial side. Fifteen osteomyelitis occured in fourteen patients (17.8%) and septic arthritis in six (7%). Less frequent

complications were impingement syndrome, gout osteoarthropaties, stress fracture, subtalar fusion, knee osteoarthritis, tendonitis of the another tibialis, and recurrent dislocation of the patella. All patients were managed conventionally, except of advanced aseptic necrosis in which indication of arthroplasty were delayed till the terminal stage.

As suggested by another recent report from Senegal, effort should be made to improve the life expectancy of sicklers in Sub-Saharan African countries; by acting on education, social, and medical care. Orthopaedic Surgery should be focussed in reducing the failure rate of joint replacement in terminal stages of osteonecrosis and designing core decompression trials in early stages.

Key-words: ***Adult sicklers, Musculoskeletal, Complications***

Pancreatic tumour in the 2 young female patients

R. Darko, H. K. Aduful and E. Q. Achampong

University of Ghana Medical School, Accra, Ghana

Most pancreatic tumours are malignant. Pancreatic tumours in the young are uncommon.

Cystic neoplasms constitute 10% of all pancreatic cysts and may be categorized into two types: primary cystic tumours and tumours with secondary cystic degeneration. The former category includes epithelial neoplasms such as serous cystadenoma, mucinous cystadenoma, intraductal papillary neoplasms tumours (PMT) pseudo papillary - solid epithelial neoplasms (PSEN), and mesenchymal neoplasms such as lymph lymphangioma and teratoma. Tumours with secondary cystic degeneration include both pancreatic exocrine (ductal adenocarcinoma) and endocrine tumours.

We describe two young women with cystic pancreatic tumours. The first was a 19 year old who presented with a mass in the right hypochondrium and chest of 2 years duration. After a thorough investigation a 10cm pancreatic tumour involving the head of pancreas was excised. Histology confirmed a serous cystadenoma. She continued to do well after resection. The second was a 23 year old female that presented with a pain and discomfort in the right upper abdomen of one month duration. After a thorough investigation a 20cm tumour involving the head of the pancreas was excised. This was reported as pseudo papillary solid-cystic tumour of the pancreas. She continues to do well a year after resection.

Owing to increased awareness and the widespread use of abdominal ultrasonography and computed tomography, an increasing number of cystic neoplasms are being identified. ***Conclusion:*** Long-term survival of patients with these tumours is generally better than that of patients with adenocarcinoma of the pancreas and mandates aggressive resectional therapy in most patients. Resection of these tumours can be done with resultant low morbidity and mortality rates.

Growing skull fractures

***V. de P. Djientcheu[1], M. Abolo[2], A. Essomba[2], B. Rilliet[3], P. Ongolo-Zogo[4], A. K. Njamnshi[5] and M. Kobela**

[1]*Service of Neurosurgery, BP 87, Central Hospital of Yaoundé, Department of Surgery, Faculty of Medicine and biomedical Sciences, University of Yaoundé I.*
E-mail: Vincent_djientchue@yahoo.com
[2]*Department of Surgery, Faculty of Medicine and Biomedical Science, University of YaoundéI*
[3]*Service of Neurosurgery, University Hospital of Geneva,* [4]*Service of Medical/Imaging, Central Hospital of Yaoundé,* [5]*Service of Neurology, Central Hospital of Yaoundé, Service of Pediatrics, Central Hospital of Yaoundé.*

Summary

Growing skull fractures are rare complication of head injuries (18). Although the early diagnosis and the prompt treatment are important which prevent the underlying progressive brain damage, the clinical presentation and the morphological investigations are rarely specific or sensitive shortly after the trauma, the authors present 3 cases of growing skull fractures. The US via the fracture line was contributive in the early diagnosis and prompt treatment in 2 cases. US was not performed in the 3Td case and the management was delayed. Both children presented with diastatic fractures, surrounded in I case by a collection overlying the lesion. The diagnosis was delayed in the first case, while the recognition and the treatment were early in the last 2 cases in which the US findings were sensitive and specific. Treatment consisted of duraplasty by a pericranium free flap without cranioplasty.

US via the fracture line is an advisable method to detect the dura defect in the early stage of growing skull fractures. Duraplasty alone with a flap of pericranium remains the simplest and less expensive method. Cranioplasty is not necessary in young children.

Key-words: ***Growing skull fractures, Leptomeningeal cyst, Echography via skull fracture***