ILLNESS AMONG NATAL INDIANS: A SURVEY OF HOSPITAL ADMISSIONS

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It has been observed that the pattern of disease among Asiatics in Durban resembles that in Europeans more closely than that in the Bantu population. There are, however, certain exceptions. The object of this survey has been to analyse the conditions for which Asiatics (Indians) are admitted to hospital, to provide impressions on the relative frequency of certain diseases and to illustrate those features of disease that are peculiar to Indians.

Unfortunately, in many instances, it is not possible to supply more than personal impressions of the relative frequency of diseases among the racial groups in Durban. Statistical comparison fails because of the lack of local data regarding morbidity in these races and because of different conditions pertaining to their admission to hospital. The publications of the General Register Office[1] serve as a guide to disease incidence among the population of England and Wales. Figures regarding Bantu patients at this hospital have been used for comparison in some instances.

Material

This survey is based on the clinical records of 10,000 patients admitted consecutively to the Indian wards of

King Edward VIII Hospital over a 16-month period ending in April 1956. It is estimated that the Indian wards of this hospital handle about 65% of hospital admissions in an area whose Asiatic population is approximately 250,000. It is thus likely that the patients in this series represent illness among some 160,000 individuals.

Since the wealthier classes obtain private medical attention and are usually admitted to other hospitals, there exists a slight bias in favour of the poorer classes among the patients at this hospital. Infectious diseases and some cases of tuberculosis are treated in separate units, so that the admissions for these conditions are lower than the true incidence.

Approximately 1·3% of the hospital records were missing or not available for analysis during the period occupied by this study. It is reasonably certain that there has been no selective loss in this respect.

Table I shows the conditions most commonly encountered, in order of frequency.

TABLE I. COMMONEST REASONS FOR ADMISSION IN ORDER OF FREQUENCY

	Percentage
Obstetric (including all complications of pregnancy, BBA and false labour)	21·0
Injuries of all kinds	11·4
Abortions	1·5 to 2·0
Superficial infections and abscesses	,,
Diabetes mellitus	,,
Gastro-enteritis	,,
Appendicitis	,,
Rheumatic fever and sequelae	1·0 to 1·5
Bronchopneumonia	,,
Tuberculosis of lungs or pleura	,,
Malnutrition	,,
Peptic ulcer	,,
Cerebral vascular accidents	,,
Amoebiasis (dysentery or liver abscess)	0·5 to 1·0
Hypertension and hypertensive heart failure	,,
Iron-deficiency anaemia (including hookworm)	,,
Burns	,,
Nephritis (all types)	,,
Bronchial asthma	,,
Pelvic infections	,,
Poisoning	,,
Worm Infestations (excluding hookworm anaemia)	,,
Pyelitis	,,
Haemorrhoids	,,
Undiagnosed on discharge	3·6

GASTRO-INTESTINAL CONDITIONS

Gastro-enteritis, bacillary dysentery and amoebic infections account for over 3% of hospital admissions. These are somewhat less common than among the Bantu, but a more striking difference is the greater resistance which Indians seem to possess against these infections. Indian infants with gastro-enteritis do not often show the severe dehydration, toxaemia and collapse which is common among Africans, and their mortality rate is lower.

Similarly among adult Indians severe fulminating amoebic dysentery has not been encountered. All forms of amoebic infection are less dangerous. In this respect the disease pattern resembles that of amoebiasis in the European population. Amoebic liver abscess is less common among Indians than Africans and is better tolerated by the host. Rupture of an amoebic abscess is a rare event.

Worm infestations are common. Ascariasis and trichuriasis are almost universal. Hookworm is less common but, in its relationship to iron deficiency anaemia, is responsible for greater morbidity than any other parasite among the Indians. Not one case of tapeworm infestation occurred among 10,000 patients. Consumption of pork is not prohibited by the Hindus, who constitute the majority of patients at this hospital. It is likely that the method of preparation of food is responsible for the rarity of tapeworms among the Indian population.

Ova of *Schistosoma mansoni* are found in the stools as commonly as ova of *S. haematobium* in the urine. The extent to which intestinal bilharzia is productive of symptoms is difficult to evaluate. Several cases of persistent abdominal pain occurred in which the only abnormal finding was that of bilharzia ova in the stools. Some cases of bilharzial appendicitis have been proved histologically.

Peptic ulcers are common among Indians but rare in the Bantu. In Indians the incidence with regard to sex, age and situation is similar to that found among Europeans.

A striking difference in racial incidence occurs in gall-bladder disease. Stocks reports that the monthly prevalence rate of these conditions in England and Wales was 121 per 100,000 population.[1] The local European population seems equally susceptible. In this series of Indian patients over a 16-month period there occurred only 7 cases with disease of the gall-bladder. Of these, 5 had gall-stones and 2 showed clinical and radiological features of chronic cholecystitis. Three of the patients were diabetics. The extreme rarity of these conditions is not easily explained. Factors which are commonly associated with cholecystitis are prevalent among Indians. Obesity and diabetes are common and fecundity is frequently phenomenal.

CARDIOVASCULAR DISEASE

Rheumatic fever and rheumatic heart disease are exceptionally common among the Indians. Of all conditions treated in medical wards they are only slightly less frequent than diabetes and gastro-enteritis. Rheumatic carditis and its sequelae account for more deaths in the 10-30 year age-groups than all other medical conditions combined. Acute rheumatic fever is rarely seen among Bantu patients, though the sequelae are more commonly observed. Rheumatic fever and carditis appear in a more florid form among the Indian children, deaths from this cause are much commoner, and valvular lesions more extensive than in European or Bantu children. In spite of the high incidence of rheumatic heart disease we have been able to recommend mitral valvotomy in very few patients. Relapses are so frequent and multiple valve lesions develop so rapidly, that cases suitable for surgery are rarely encountered.

Hypertensive heart disease, coronary thrombosis and cor pulmonale are relatively common and follow the pattern observed among Europeans. Coronary thrombosis is much more frequent than among the Bantu.

In this series were also several patients with unexplained cardiac failure. Most of these conform to the type which has been called nutritional heart disease among the Africans.

Varicose veins were the commonest type of peripheral vascular disease observed, but the incidence is considerably

lower than among Europeans. A study of the sex incidence in this series reveals an unusual distribution. Of all patients who were admitted to hospital on account of varicose veins, 4/5ths were males. This is all the more surprising in view of the high degree of parity of Indian women. It appears that pregnancy is not a significant factor in the genesis of varicose veins in Indians.

ANAEMIAS AND BLOOD DISORDERS

Severe anaemias are remarkably common among the Indian population, and the nature of these anaemias differs from that found among the European and Bantu. Among 10,000 admissions there were 128 patients whose haemoglobin

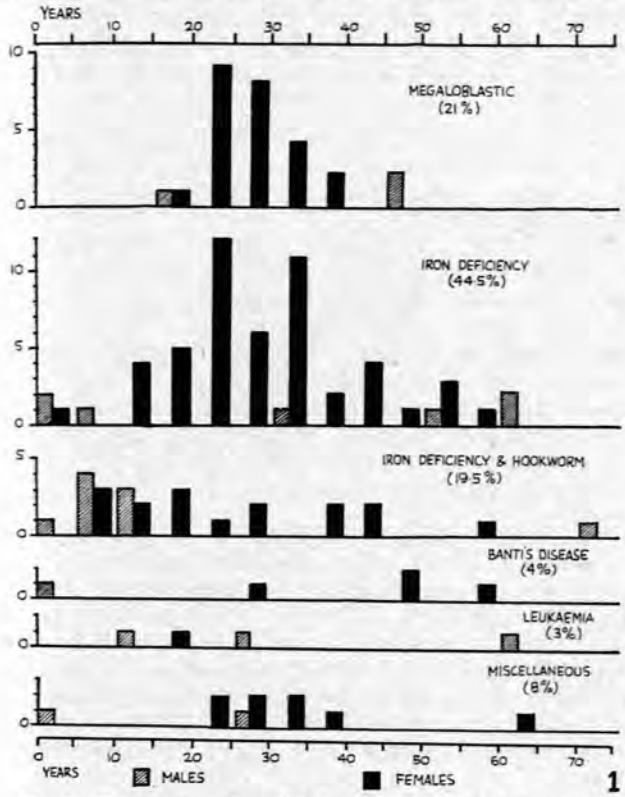

Fig. 1. Severe anaemias: distribution according to type, age and sex.

levels were below 7·4 g.% (50%). Patients with anaemia due to frank haemorrhage and surgical or gynaecological causes are excluded from this group. The distribution of the cases according to age, sex and type is shown in Fig. 1. The arbitrary level of 7·4 g.% haemoglobin has been chosen for the sake of simplicity in classification. Less severe anaemias frequently receive out-patient treatment.

Iron-deficiency anaemia accounts for about 2/3rds of all severe anaemias. In this respect the Indians differ markedly from the Africans, in whom severe iron-deficiency is rare. In about 1/3rd of Indian patients with iron-deficiency anaemia, ova of hookworm have been found in the stools after one or two examinations. The role of hookworm in the production of anaemia is not settled. Some authors have cast doubt on any relationship between the two conditions. The evidence of this group of patients distinctly incriminates the hookworm. Occult blood has been present in the stools of the majority of our patients with severe anaemia and hookworm infestation. Eosinophilia was present in many of these patients.

In about 2/3rds of the iron-deficiency group no cause is directly obvious. The age and sex distribution (Fig. 1) emphasizes the importance of the demands made by menstruation and pregnancy. It is also significant that among males iron-deficiency anaemia occurs almost exclusively below the age of 15 years. It is reasonable to suppose that, because of a metabolic or dietary deficiency, the iron balance of many Asiatics is in a precarious state. Any increased demand, such as those of growth, menstruation, pregnancy or hookworm infestation, is sufficient to make the defect clinically manifest. The rarity of iron deficiency among the Africans indicates some difference in the iron metabolism of these two races.

The lowest haemoglobin level observed among these patients with iron-deficiency anaemia was 1·6 g.% (11%).

Megaloblastic anaemias of pregnancy and the puerperium are well recognized among Indian and Bantu patients at this hospital.[2, 3] In the present series there were 27 cases of megaloblastic anaemia (Fig. I). Of these, 23 occurred in association with pregnancy and the puerperium; 2 patients presented in the last trimester of pregnancy, 4 were at term, and the remaining 17 presented 1-9 months after delivery.

There were 4 cases of megaloblastic anaemia unrelated to childbirth. One was a man with carcinoma of the anus who died before investigations were complete. The remaining 3 patients, 2 men and 1 woman, belong to a type not previously described among Durban Indians. The feature common to the 3 patients was that, for religious or personal reasons, none of them consumed any meat, fish or animal products. The following case illustrates the features of this type:

A man of 20 years was admitted severely ill in congestive cardiac failure with a haemoglobin of 2·7 g.%. His religion forbade the consumption of any animal foods. The diet had been adequate in other respects. In addition to signs of congestive cardiac failure with a dilated heart and widespread haemic murmurs he had mild jaundice, splenomegaly and numerous retinal haemorrhages with a few soft exudates. Serum bilirubin was 4 mg.%. Numerous megaloblasts were present in the peripheral blood and the diagnosis was confirmed by bone-marrow biopsy. Free HCl was present in the gastric juice. In view of the presumed dietary deficiency of extrinsic factor he was treated with vitamin B12 in doses of 100 μg. daily by injection. There was a rapid reticulocyte response, which reached a maximum of 53% on the 7th day, followed by complete recovery.

The other two cases of this vegetarian type of megaloblastic anaemia were a man of 46 and a woman of 40. The latter was treated with vitamin B12 by mouth in doses of 150 μg. daily. This produced a reticulocyte response of 22% on the 14th day and eventual complete recovery. None of these patients showed evidence of neurological disease.

It is possible that megaloblastic anaemias may be divided into two types depending on the serum-B12 levels. Those with normal levels, such as the anaemia of pregnancy, usually respond to treatment with folic acid. In pernicious anaemia the serum-B12 levels are subnormal. Megaloblastic anaemias in vegetarians have been described by several authors.[4, 5, 6] This anaemia, which apparently represents a pure dietary deficiency of extrinsic factor, resembles pernicious anaemia in respect of low serum-B12 levels, response to vitamin B12 and possible development of neurological complications. Our 3 cases are presumably of this type. A further feature

in these cases was the presence of jaundice, which appears to be more pronounced in cases of B12 deficiency than in the megaloblastic anaemia of pregnancy.

Retinal haemorrhages have been observed in many of our cases of megaloblastic anaemia, but have not been seen in iron-deficiency anaemia of comparable severity. This sign has received scant mention in the literature and deserves greater emphasis since it has been found to have diagnostic significance. Other evidence of a haemorrhagic tendency, such as vaginal or gingival bleeding, has also been present in some cases of megaloblastic anaemia.

All cases of megaloblastic anaemia associated with pregnancy were treated with folic acid. The response was usually good. Some patients have become deficient in iron while under treatment.

There were 2 deaths from megaloblastic anaemia in this series. Both were severe anaemias presenting in the puerperium with haemoglobin levels of 2·2 g.% (15%) and 1·4 g.% (10%) respectively. These were the only patients in this group who received blood transfusions. No inference can be drawn, since these were also the two most severe cases of megaloblastic anaemia of the group. The response of other patients to the appropriate haematinic substance has been so prompt that one may conclude that blood transfusion is only justified when the usual treatment fails.

Very severe degrees of anaemia occurred in both iron-deficient and megaloblastic groups. Patients with the former disease are generally much less disabled than patients with megaloblastic anaemia of comparable severity. Cardiac failure occurs more readily in megaloblastic anaemia. Iron-deficient patients are often remarkably well despite alarming haemoglobin levels.

Unexplained *splenomegaly* has been observed, most frequently as an incidental finding in female patients. This is often associated with varying degrees of iron-deficiency anaemia. Where the anaemia is severe and associated with gastro-intestinal bleeding and leucopenia the presumptive diagnosis has been Banti's syndrome.

NEUROLOGICAL DISORDERS

The incidence and nature of most neurological disorders in Indians runs parallel to those found among the European population. Cerebral vascular accidents, meningitis, epilepsy, peripheral neuritis and tumours occur in that order of frequency.

There remains a group of conditions in which the diagnosis is written with a question mark. This usually implies that the patient has had undoubted organic neurological disease but that it has been difficult to relate it to any definite clinical entity. Fortunately most of these conditions are self-limiting and the patients usually recover with little specific treatment. These obscure nervous disorders may be divided into two groups.

The first and larger group probably represents *virus infections* of the nervous system. In this category are patients with atypical encephalitis, meningitis, myelitis or unexplained cranial- or peripheral-nerve palsies. In these cases the cerebrospinal fluid has been normal or has shown a variety of changes of which the commonest is slight pleocytosis and increased protein content with no alteration in other chemical constituents.

In the second group of obscure conditions blame is usually laid on malnutrition. Various nutritional neuropathies have been described, but there seems to be no consistency in the neurological picture which can be produced by malnutrition. Few of our cases conform to the types described but, in the presence of undoubted evidence of malnutrition and response to treatment, one is forced to the conclusion that the neurological disorder is due to this cause. The following case is an example:

A 43-year-old woman had increasing difficulty with walking for 1 year. On admission she was unable to walk without assistance and had signs of a spastic paraplegia with exaggerated tendon reflexes and bilateral ankle clonus. Some intellectual impairment made examination of sensation difficult but it appeared that both superficial and deep sensation in the legs were deficient. She had signs of mild pellagra and an iron-deficiency anaemia with a haemoglobin level of 5·1 g.%. Investigations, including that of the cerebrospinal fluid, showed no further abnormality. Within 4 weeks she had recovered fully. Treatment consisted of normal hospital diet, vitamin supplements and iron.

Severe iron-deficiency anaemia was a feature of several other cases of nutritional neuropathy, but since the former is common in this race it may not have any direct relationship to the latter.

There are other neurological conditions whose incidence among the Indians is unexpectedly high. Rheumatic chorea is common and its frequency parallels the high incidence of rheumatic fever among Indian children. Of intracranial space-occupying lesions, tuberculomata, either single or multiple, are nearly as common as neoplastic growths. In these cases diagnosis is usually based on the discovery of other tuberculous lesions and on response to treatment. In one fatal case multiple cerebral tuberculomata were found *post mortem* to be associated with tuberculous endometritis.

Muscular dystrophies appear to be unusually prevalent in Indians. Among 10,000 admissions there have been 8 cases of muscular dystrophy, representing 5 unrelated families. Within the families the dystrophies breed true in type. Outside the familial relationship there was wide variation in the type of dystrophy encountered.

Familial cerebellar ataxia of the Holmes type was seen in 2 middle-aged brothers.

Disseminated sclerosis has not appeared in our Indian patients.

MALNUTRITION

Malnutrition is exceptionally common and is directly or indirectly responsible for a large number of deaths among Indian infants. Kwashiorkor is seen frequently, often complicated by gastro-enteritis or bronchopneumonia. Among adults, pellagra and multiple deficiencies are common.

Less common, but worthy of mention in that an underlying cause of malnutrition may be overlooked, is the malabsorption syndrome due to abdominal tuberculosis. This has been seen in both adults and children. That medical treatment alone may be inadequate was shown in one case in which the pathology was revealed at autopsy.

A woman aged 27 years was admitted to hospital on 3 occasions. The first time she presented with diarrhoea of 1½ years duration and signs of pellagra. She had previously received treatment for tuberculous cervical adenitis. A barium meal revealed the disordered pattern and intestinal hurry which is associated with

malabsorption. On treatment with streptomycin and isoniazid there was marked improvement. On her second admission the main complaint was colicky abdominal pain, but the clinical picture and response were similar. Treatment of the patient was continued as an out-patient. She returned 9 months later when she was grossly emaciated with oedema of the ankles and sacrum. The main complaint was muscular cramps and she displayed signs of tetany. She had pellagra, a normocytic normochromic anaemia (Hb. 8·8 g.%), hypoproteinaemia (albumen 1·1 g.%, globulin 3·5%) and the serum calcium was 5·8 mg.%. Despite treatment she died a week later. At autopsy, apart from a terminal pneumonia, the only further abnormality was an indurated fibrotic stricture involving the ileo-caecal valve and terminal ileum. It seems likely that the malabsorption resulted from the effects of a chronic stricture, the tuberculous process being then inactive.

Several further cases have been seen in which a similar pathological process has been suspected. One middle-aged man, who had been admitted to hospital repeatedly with malnutrition and anaemia over a period of 12 years, has recently shown considerable improvement after resection of a similarly affected portion of bowel. In this case there was, in addition, a blind loop, the result of an ileo-transverse colostomy 3 years previously.

Unfortunately, in these cases of malabsorption due to tuberculosis, the diagnosis is not easily proved and assessment of the need for surgery is equally difficult.

ENDOCRINE DISORDERS

With the exception of diabetes, endocrine diseases are rare. In this series of 10,000 Indian patients there were 11 cases of non-toxic thyroid adenoma and 4 cases of colloid goitre. Thyrotoxicosis is extremely uncommon, no cases having occurred in this series. Myxoedema and hypoparathyroidism occurred in isolated instances, and there were 3 cases of Addison's disease.

Diabetes mellitus, on the other hand, accounted for more admissions to the medical wards than any other single disease. In this series the incidence of diabetics is 19·2 per 1,000 Indian patients. During an equivalant period the incidence among Bantu patients at this hospital was 0·53 per 1,000 admissions. Per unit of population the incidence of diabetes among the Indians appears to be higher than that in England and Wales.[1] Judged by hospital admissions, it is certainly much commoner than among the local European population. Though these data are not strictly comparable, it is obvious that diabetes is exceptionally common among the Indians; and is 30 to 40 times as common as in the local Bantu population. The sex distribution of diabetics follows the usual pattern for other races (Fig. 2). The preponderance of females over males, however, becomes apparent about 10-15 years earlier than it does in a European population.[7,8] Even the men appear to develop diabetes at a somewhat earlier age.

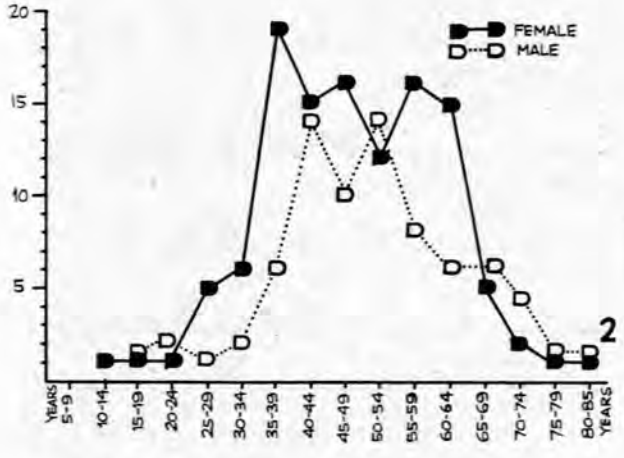

Fig. 2. Age and sex distribution of 192 diabetics.

Besides its frequency and age incidence, diabetes among the Indians exhibits some other unusual features. Ketosis is rare; among the 192 diabetics in this series only 2 were in coma or pre-coma, and less severe ketosis was similarily uncommon. There is also a high degree of insulin resistance among Indian diabetics, the average dose of insulin required being well above the 20-50 units daily quoted by Stocks[1] for English diabetics. Hypoglycaemic reactions are fortunately uncommon. This rarity of ketosis and hypoglycaemic reactions cannot be ascribed to good control of diabetes. Social and economic factors, lack of education, and misunderstanding all contribute towards great difficulty in the control of diabetics by diet and insulin.

In contrast, the other complications of diabetes are extremely common, and these probably reflect more accurately the delay in diagnosis and lack of effective control. Infections and ocular, renal and vascular complications are the commonest reasons for admission of diabetics to hospital. Indeed, the latter two complications are so common and ketosis so rare that experience has shown that coma in an Indian diabetic is more usually the result of renal failure or cerebral vascular accident than ketosis. Diabetic intercapillary glomerulosclerosis has been seen frequently in all stages of development and constitutes one of the gravest complications of diabetes in this race.

Some of our diabetics conform to the J type of diabetics described by Hugh-Jones among Jamaicans.[9,10] This term is applied chiefly to young diabetics who show insulin resistance but do not readily develop ketosis without insulin.

Two factors may be responsible for the unusual pattern and exceptional frequency of diabetes among Indians, one an inherent racial or genetic factor, the other dietary. A more detailed analysis of a further series of Indian diabetics is being made.

ARTHRITIC CONDITIONS

Rheumatic fever is the commonest form of arthritis in this race. Rheumatoid arthritis, gout, and ankylosing spondylitis, all occur less frequently than among Europeans. Excluding rheumatic fever, the commonest form of arthritis is an atypical one which does not conform to the European prototypes. The patient is usually a young adult who presents with an effusion into a large joint, usually the knee. There is, or has been, pain in other joints, but it does not have a flitting character. The joint effusion is clear and sterile on culture. There is no evidence of past or present gonococcal infection. X-rays of the affected joints show no abnormalities apart from occasional slight osteoporosis. The condition usually clears up after 2 or 3 weeks rest and treatment with salicylates. Recurrence is unusual. These cases have been diversely labelled atypical or monarticular

rheumatoid arthritis or palindromic rheumatism, but none of the descriptions can be considered accurate.

MALIGNANT DISEASE

Among 10,000 Indian admissions there were 90 patients with malignant disease. In this group diagnosis was made on pathological or histological grounds, or based on sound radiological evidence. Doubtful cases were excluded. Fig. 3 illustrates the types of malignant disease encountered most

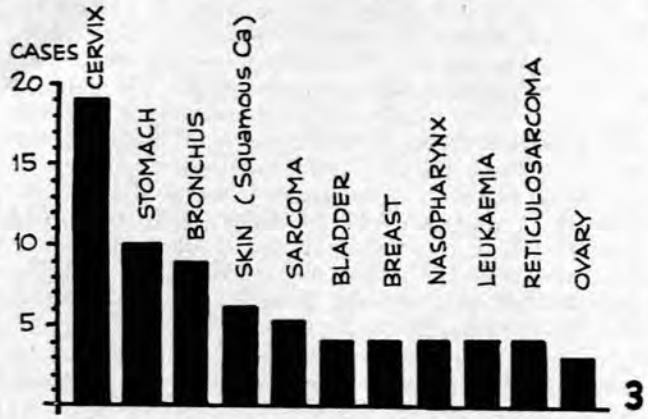

Fig. 3. Commonest types of malignant disease.

frequently among Indians. There were 19 cases of carcinoma of the cervix. Of these, 17 were Hindu and 2 Christian. No cases of cervical carcinoma occurred among Moslems, the only Indian group who regularly practise circumcision. This is in accord with the finding of Wynder[11] that the disease is much commoner among races who do not practise circumcision. Since Hindus predominate in the population there exists a bias in favour of this group.

Carcinoma of the breast (4 cases), colon (2 cases) and rectum (2 cases) have a lower incidence than in the European population. The rarity of breast cancer may be related to early childbearing, large families, and the late weaning which is customary among the Indians.

Primary carcinoma of the liver, common in the local Bantu population, has not been observed in Indians. Of 10 cases of gastric carcinoma all but one occured in males. Among the rare types of malignant disease were 2 cases of sarcoma botryoides in infants.

OBSTETRICS AND GYNAECOLOGY

The first impression gained from a study of Indian maternity records is one of early childbearing and great fecundity. An analysis of the relationship between age and parity, based on the records of 300 consecutive uncomplicated maternity cases gives the following results:

The average age of primiparae was 20·75 years. The average age of women bearing their 5th child was 25·7 years, and that of mothers in labour for the 10th time 34·0 years. Thus the average interval between the births of an Indian mother's first 5 children is 12 months, and between the births of her second 5 children 20 months. Since these figures are culled from hospital maternity records they do not represent the whole population.

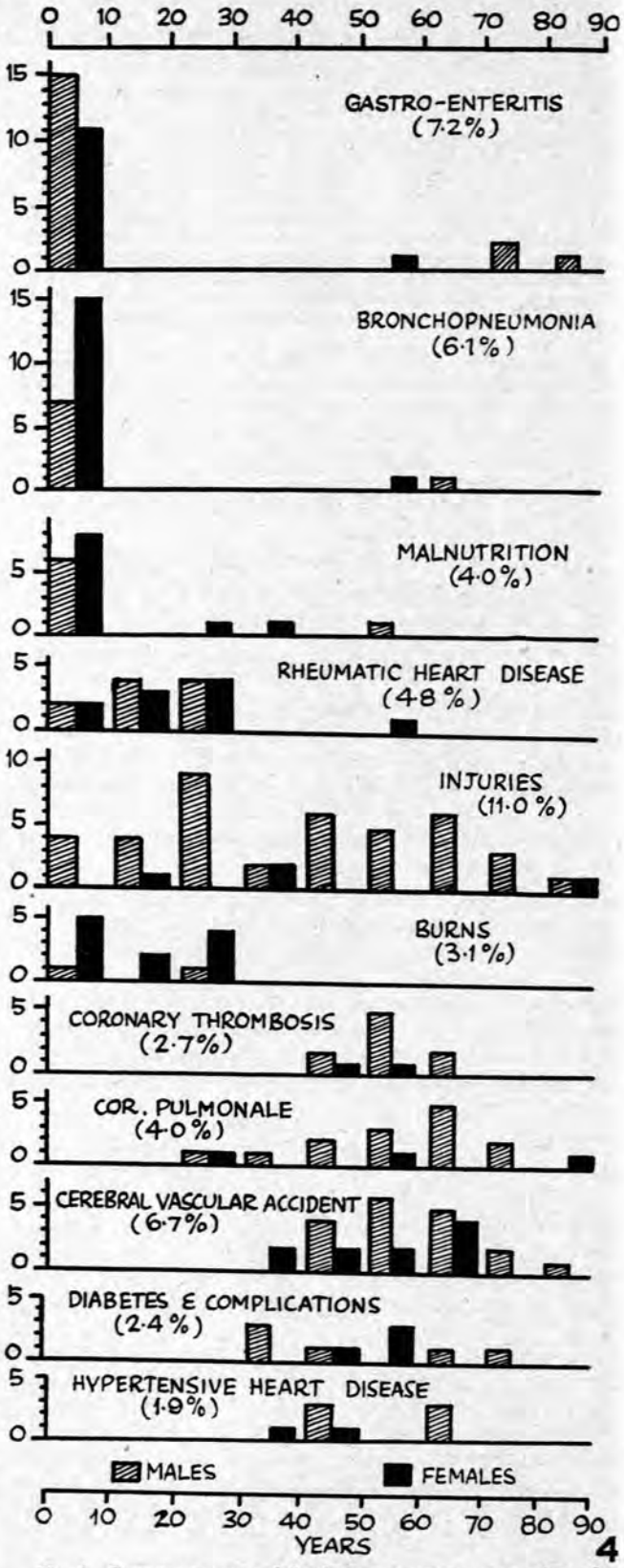

Fig. 4. Common causes of death (percentages expressed as of total deaths—415).

Abortion is the commonest reason for admission to gynaecological wards, and accounts for about 2% of all admissions.

Only 4 cases of fibromyoma of the uterus occured among 10,000 admissions. This rarity may be related to early childbearing and large families.

OTHER DISEASES

Genito-urinary and Respiratory Diseases. Nothing unusual was noted in the incidence or nature of genito-urinary or respiratory disorders among the Indians.

Undiagnosed Cases. Approximately 3·6% of all cases admitted to hospital were discharged without a definite diagnosis having been made. An analysis of these showed that abdominal pain was the main complaint in over 50% of these patients. Most of them were in the 10-30 years age-group, and there was a slight preponderance of females. The stay in hospital was usually short, because the symptoms subsided within a week in most cases. The commonest and frequently the only abnormality found on investigation was evidence of worm infestation, either ascaris or hookworm, or both. Since these parasites are so common in the Indian population the significance of this finding is difficult to assess. In some cases the abdominal pain ceased after anthelminthic treatment. In many others the symptom abated without specific treatment. Undoubted cases of intestinal obstruction due to roundworms have been seen in children. It is reasonable to suppose that less severe symptoms may occur from a similar cause. Other common presenting symptoms in subsequently undiagnosed cases were headache, backache and fever.

DEATHS

It is unfortunate that permission for post-mortem examinations is so rarely forthcoming in this race. Valuable knowledge is repeatedly lost and clinical research is considerably hampered. Some enlightenment is necessary if problems peculiar to this race are to be adequately investigated.

Among 10,000 Indian admissions 415 deaths occurred. The age and sex incidence of some of the commoner causes of death are illustrated in Fig. 4. Over one-quarter of all deaths occurred in the 0-10 years age-group. This high mortality is mainly attributable to gastro-enteritis, bronchopneumonia and malnutrition. Deaths in the next 2 decades reflect the heavy toll taken by rheumatic heart disease and by fatal injuries. The latter account for considerable mortality at all ages, and are almost entirely confined to males. In middle age, coronary thrombosis, hypertension, cerebral vascular disease, and chronic respiratory disorders, are responsible for most deaths.

SUMMARY

Ten thousand consecutive admissions to the Indian (Asiatic) wards of King Edward VIII Hospital, Durban, have been analysed. The conditions which occur with undue frequency or undue rarity, or which show features peculiar to the race, are discussed (Table II).

TABLE II

Unexpectedly common conditions	*Unexpectedly rare conditions*	*Diseases with unusual features*
Rheumatic fever	Cholecystitis	Diabetes mellitus
Rheumatic heart disease	Gall-stones	'Rheumatoid' arthritis
Diabetes mellitus	Thyrotoxicosis	Some anaemias
Iron-deficiency anaemia	Diabetic ketosis	Some neurological disorders
Megaloblastic anaemia	Carcinoma of breast	
Rheumatic chorea	Carcinoma of colon	
Muscular dystrophy	Fibromyoma of uterus	
	Varicose veins	
	Tapeworm infestation	

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