

Profile and Outcome of Medical Emergencies in a Tertiary Health Institution in Port Harcourt, Nigeria.

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Maclean Rumokere Akpa, Datonye Dennis Alasia, Dasetima Dandeson Altraide, Pedro Chimezie Emem-Chioma, Ipalibo Simpson Wokoma.

Department of Internal Medicine, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria.

ABSTRACT:

BACKGROUND: Medical emergencies are a daily occurrence in medical practice. The profile and outcome medical emergencies are a reflection of the prevailing pattern of disease and the responsiveness of the healthcare system. This study seeks to evaluate the pattern and outcome of medical emergencies presenting to the university of Port Harcourt teaching hospital (UPTH), Port Harcourt.

METHODS: A retrospective study of medical records of the accident and emergency unit of UPTH was assessed over a twelve month period (June 2008 May 2009).

RESULTS: A total of 7246 patients presented to the emergency room, with 1256 (17.3%) medical emergencies. Infectious diseases accounted for 274 (21.8%) of emergencies while non-communicable diseases in the cardiovascular 195 (15.5%), renal 105 (8.4%), neurological 224 (17.8%), endocrine 163 (13.0%) and gastrointestinal/hepatobiliary 163 (13.0%) systems were the other prevalent emergencies. The crude mortality rate was 127 deaths (10.2%). The major contributors to mortality were HIV/AIDS related infectious diseases (22.4%), hypertension related heart disease (18.4%) and stroke (15.7%). Other contributors to mortality were renal failure (8.8%), diabetic emergencies (8.8%), chronic liver disease (12.8%) and haematological malignancies (9.6%).

CONCLUSION: The spectrum of medical emergencies and the pattern of mortality indicate a mixed disease burden of infective

and non-communicable diseases; with cardiovascular and cerebrovascular diseases and HIV/AIDS related infectious as the most significant contributors. There is need for action to improve on the responsiveness of our healthcare systems to cope with this trend of disease pattern in our emergency rooms and reduce mortality from medical emergencies.

INTRODUCTION

Medical emergencies are a daily occurrence in medical practice. The emergency room or accident and emergency department (ER/A&E) is the first point of care for these emergencies. The ER/A&E provides the initial resuscitation and evaluation, working diagnosis, definite treatment and referral depending on the situation.

The outcome of these emergencies therefore depends largely on the facilities and manpower available in this department [1, 2]. The department can therefore serve as a tool for assessing the overall quality of service delivery in any institution [1, 2].

The profile of medical emergencies is also a reflection of the prevailing pattern of disease in a community and its outcome mirrors the responsiveness of the healthcare system [1-3].

The study seeks to evaluate the pattern and outcome of the medical emergencies presenting to the university of Port Harcourt teaching hospital (UPTH).

METHODOLOGY

A retrospective descriptive analysis of the medical records of the accident and emergency unit of the University of Port Harcourt Teaching Hospital (UPTH) was undertaken. The study covered a period of twelve months between June 2008 and May 2009. The total number of patients who presented to the accident and emergency department was assessed and the records of all the patients with medical diagnoses who presented during the study period were examined. Trauma and surgical cases were excluded. The data obtained included the demographic data, initial and final diagnosis and the outcome of treatment with emphasis on mortality. There was no post mortem report for all the mortalities. The data was analysed using SPSS for windows version 17 and is presented in simple descriptive statistics.

RESULTS

Prevalence of medical emergencies: A total of 7246 patients presented to the emergency room during the study period, out of which 1256 (17.3%) had medical diagnoses.

Demographics: The mean age of the patients was 45.50 ± 17.66 years (Table 1). Majority of the patients 269(21.4%) were in the 20–29 year age group, followed by the 30–39 year age group

Table 1: Age Distribution Of Patients With Medical Emergencies

AGE GROUP	N	Mean	Std. Deviation	% of Total N
20–29	269	23.03	4.000	21.4%
30–39	246	34.33	2.862	19.6%
40–49	239	44.07	2.957	19.0%
50–59	182	53.72	2.870	14.5%
60–69	176	63.47	2.822	14.1%
70–79	92	72.69	3.304	7.3%
80–89	43	82.68	2.936	3.4%
90–99	9	91.13	2.100	0.7%
Total	1256	45.40	17.659	100.0%

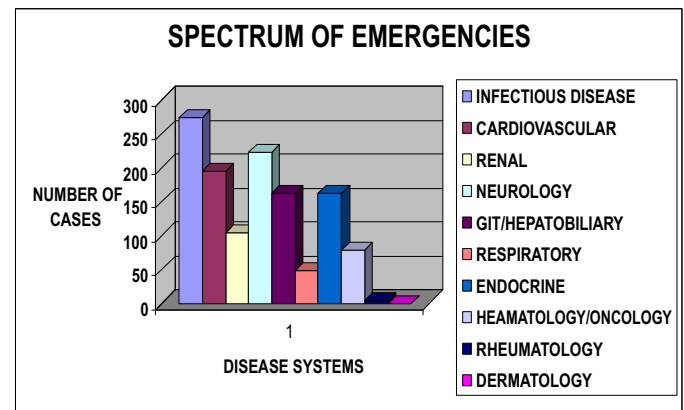
The spectrum of medical emergencies presenting over the study period is displayed in table 2 and figure 1.

Infectious diseases accounted for 274 (21.8%) of the emergencies while non-communicable diseases in the cardiovascular 195 (15.5%), renal 105 (8.4%), neurological 224 (17.8%), endocrine 163(13.0%) and gastrointestinal/

Table 2: Spectrum of Medical Emergencies by Systems

Disease System	Frequency	Percent
Infectious disease	274	21.8
Cardiovascular	195	15.5
Kidney disease	105	8.4
Neurology	224	17.8
git and hepatic	163	13.0
Respiratory	48	3.8
Endocrine	163	13.0
Haematology and oncology	80	6.4
Rheumatology	4	.3
Dermatology	0	0
Total	1256	100.0

Fig1: Spectrum of Medical Emergencies by Disease System



Outcome of emergencies: The outcome in terms of mortality of the medical emergencies showed that 127 patients out of 1256 who presented died in the emergency room resulting in a crude mortality rate of 10.1%.

The distribution of mortality by age group is as shown in table 3. The mortality rates by age group were highest in the following age groups 80–89 year group (13.9%), 50-59 year group

Table 3: Distribution of Medical Emergency Mortality by Age Groups

Age Range	No of cases	Mortality	%Age Mortality
20-29yrs	269	25	9.3
30-39yrs	246	27	10.9
40-49yrs	239	23	9.6
50-59yrs	182	22	12.1
60-69yrs	176	16	9.1
70-79yrs	92	7	7.61
80-89yrs	43	6	13.9
90-99yrs	9	1	11.1
TOTAL	1256	127	—

There was no significant difference in the proportion of mortality by gender. Out of 127 subjects who died in the ER/A&E 64(50.4%) were females and 63(49.6%) were males.

The distribution of mortality by disease presentation is as shown in the table 4.

The major contributors to mortality were HIV/AIDS related infectious diseases (22.0%), hypertension related heart disease (18.1%) and stroke (18.1%). Other major contributors to mortality were renal failure (9.5%), diabetic emergencies (8.6%), chronic liver disease (12.6%) and haematological malignancies (9.5%).]

DISEASE CATEGORY	Frequency	% of Total N
Infectious disease	28	22.0%
Cardiovascular Diseases	23	18.1%
Kidney disease	12	9.5%
Neurology(stroke)	23	18.1%
Git and Hepatic	16	12.6%
Respiratory	2	1.6%
Endocrine	11	8.6%
Heamatology and Oncology	12	9.5%
Dermatology	0	0
Total	127	100.0%

DISCUSSION

This study showed a mixed spectrum of medical emergencies and the pattern of mortality from this study indicate a mixed burden of infective and non-communicable diseases (NCDs); with cardiovascular and cerebrovascular diseases and HIV/AIDS related infectious as the most significant contributors. The study also showed that medical emergencies accounted for a significant proportion of the emergencies seen.

The prevalence of medical emergencies reported in this study was 17.3%. This indicates that medical emergencies account for a significant proportion of all emergencies and is in keeping with report of Ekere et al [3], in A&E/ER of the same institution which noted that non traumatic emergencies accounted for (79.8%) of all emergencies seen within a the 3 year period.

This implies that there is a need to optimize care for medical and non traumatic emergencies in addition to appropriate resource allocation for this category of diseases during planning for emergency care.

In this study the mean age of the patients with medical emergencies was 45.50 ± 17.66 years. Though this was higher than the 33 ± 9.4 years reported by Ekere et al [3] in a study of all emergencies in the same institution, this can be explained by the exclusion of traumatic cases from this study which is likely to have younger subjects. The age of the subjects with medical emergencies reported in this study also mirrors the pattern seen in medical admissions from other studies by Ogun et al [4] in south west Nigeria which reported a mean age of 49 ± 1.7 years and that of Odenigbo and Oguejiofor [5] in FMC Asaba with a mean of 51.56 ± 18.35 years.

The majority of the subjects were (21.4%) were in 20-29 year age group, followed by the 30-39 year age group with (19.6%) and 40-49 year age group with (19.1%). This pattern is similar to the findings of Ogah et al [6] who reported that subjects in the above age categories constituted the majority of medical admissions in the emergency room of a tertiary centre in South West Nigeria though with differing proportions as listed with 30-39 years age group (17.6%), 40-49 years (17.0%) and 20-29 years (16.7%). This suggests a similar pattern in the age burden of medical emergency admission in the Nigeria, as the two studies were done in two different regions of the country though in the South. The implications of this trend are that subjects in the 20-49 years age group who are at the peak of productivity are most affected by medical emergencies. The socioeconomic consequences of this finding include huge healthcare expenditure and reduced GDP from low productivity. This trend may also contribute to the low life expectancy in the country as a significant proportion of mortality would be expected in this age group.

The gender distribution of (M: F of 0.99:1) found in this study and the M:F of 1.1:1

reported by Ogah et al [6] are similar and also indicative of an equal burden of medical emergencies in both males and females.

The study shows that majority of the medical emergencies were non communicable disease related (78.2%) compared to communicable or infective which were mostly related to HIV/AIDS constituting 21.8% of all emergencies. Though the study by Ogah et al [6] showed a higher proportion of non communicable diseases 52.4% compared to 47.6% for infectious diseases, the higher proportion of NCDs and lower proportion of Infectious diseases in the emergency in Port Harcourt may be due to the differences in the environment as Port Harcourt is a more urban and cosmopolitan city compared to Idi-Aba, Abeokuta where the study by Ogah et al was done.

The pattern of emergency presentation seen in this study seems to mirror the pattern of general medical admissions in Port Harcourt as shown in other studies by Unachukwu et al [7] who reported a mixed disease burden of communicable diseases (43.8%) and NCDs (56.2%) among medical admissions in Port Harcourt and that of Onwuchekwa and Asekomeh [8] in a study of geriatric medical admissions who reported infections accounting for 18.8% of admissions while NCDs accounted for 81.2% with cardiovascular diseases accounting for 43.7% of the NCDs. The same pattern has also been reported by Ike et al [9] in Enugu, Ogun et al [4] in Sagamu and Odenigbo et al in Asaba [5]. The pattern of emergency admissions seen in this study confirms the already established trend of the NCD pandemic in developing countries and calls for intensified action on NCDs prevention and control.

The commonest infectious disease medical emergencies seen in this institution were mainly HIV/AIDS related infections which resulted in 21.8% of all medical emergencies. This figure and pattern is comparable to the trend reported by other studies. Sani et al [10] in a study in Kano reported that HIV/AIDS related diagnosis accounted for 9.9% of all medical admissions over the period of their study and showed a

progressive increase from 45 cases in 2001 to 174 cases in 2004. Ike et al [9] in Enugu also recorded a significant contribution of HIV related disorders which accounted for 6.7% of all medical admissions while another study in Tikur Anbessa Ethiopia [11] reported a 13% prevalence of HIV/AIDS infection related disease among medical admission. In addition Ogah et al [6] reported that HIV/AIDS related medical emergencies were responsible for 10.2% of all medical emergency admissions in their study.

The analysis of NCDs in this study shows that cardiovascular diseases which were largely hypertension related; neurological diseases mainly from strokes; endocrine diseases predominantly related to diabetes mellitus and gastrointestinal/ hepatobiliary disease were the most common NCD emergency presentations. The other prevailing emergencies were renal and haematology/oncology diseases; while dermatologic emergencies were the least common. The pattern observed in this study is similar to that reported by Ogah et al [6] with cardiovascular, neurologic, endocrine and hepatobiliary emergencies as the most common and dermatology emergencies as the least common.

The pattern also mirrors the trend reported from various studies of medical admissions [3 -5, 7, 8, 12-14] which rate cardiovascular disease related emergencies from hypertension and stroke, diabetes and renal diseases as common medical emergencies and indications for admissions.

The spectrum of NCDs in this study indicates that cardiovascular and cerebrovascular risk related diseases such as hypertension, stroke, diabetes and renal failure constituted more than half (55.10%) of all the medical emergencies while HIV/AIDS related diseases were responsible for over 80% of infection related medical admissions.

This is reflective of the global disease burden or pattern of NCDs documented for Nigeria and other developing countries [15] which shows that non communicable diseases are now a

major contributor to the disease burden in addition to HIV/AIDS in sub-saharan Africa[15,16].

The crude mortality of 10.1% amongst these medical emergencies recorded in this study is considered significant and indeed high. This is much higher than the 2% overall emergency room mortality recorded for a study between 2000 and 2003 by Ekere et al [3] from the same institution and indicates that deaths from medical emergencies are a major contributor to emergency mortality in the institution especially as this same study reported that a large proportion (25.2 %) of non traumatic deaths were cardiovascular disease related.

The pattern highlighted above has also been shown in other studies of overall hospital admission mortality in Nigeria. Ilyiasu et al [13] in a study of overall hospital admission mortality in Kano showed a crude mortality rate 7.8%, while Adekunle et al [17] in Owo reported an overall hospital mortality among admissions of 6.9%. In each of these studies medically related mortalities from cardiovascular and cerebrovascular diseases, diabetes mellitus, kidney failure and HIV/AIDS were the leading causes of death in the hospital.

This high rate of medical disease mortality in hospitals is also reflected in the reports from other studies of medical admissions within Nigeria by Sani et al [18] in Kano who reported crude mortality among medical admissions over a 3 year period of 25.3% and Odenigbo et al [5] in Asaba who reported a crude mortality rate among medical admissions of 12.9% which is comparable to the mortality rate of medical emergencies in our study. The leading causes of medical admission mortality in the Kano study by Sani et al [18] were infectious diseases other than HIV/AIDS (17.9%), cerebrovascular disease (17%), HIV/AIDS (13.6%), chronic renal failure (12.5%) and diseases of the circulatory system (11.9%).

The major contributors to medical emergency mortality reported in this study which are HIV/AIDS related infectious diseases, hypertension related heart disease, stroke, renal

failure, diabetic emergencies and chronic liver disease is similar to the pattern reported in various studies [5,8,10,13,17]. The contribution of haematological malignancies (9.5%) to the medical emergency mortality identified in this study is in line with the observation of Adeolu et al [19] who observed an increasing contribution of neoplasias to hospital mortality over the last decade of their study covering a period from 1996 to 2006.

This crude mortality rate of medical emergencies from this study is considered high and is reflective of the poor state of medical facilities and emergency responsiveness. The late presentation of patients that is characteristic of medical diseases and emergencies in Nigeria, which makes it difficult to achieve good outcomes is another contributor to mortality [3, 20]. The key contributors to mortality are the cardiovascular and cerebrovascular related NCDs as well as HIV/AIDS related infections which are reported to contribute significantly to the adult mortality in Nigeria and Africa [10,11,16,18,21]. Resultantly measures which will promote early presentation, primary and secondary prevention of NCDs, HIV/AIDS program scale up expansion as well as improved facility and capacity for medical emergency response will be useful in curbing the current unacceptable level of mortality.

An analysis of mortality rates by age group in this study shows that mortality was higher in the following age groups 80-89 year group (13.9%), 50-59 year group (12.1%), 90-99 year group (11.1%) and 30-39 year group (10.9%). This indicates higher rates of mortality from medical emergencies in the elderly compared to younger people. This is in line with an analysis [3] of non-trauma deaths in the emergency of the same institution with a peak age of 20-29 years compared to 40-49 for non-trauma. This trend of higher mortality among the elderly in medical wards has also been documented in other studies [8, 22]. This finding indicates the need for more emphasis on geriatric care and special attention to the elderly who present with medical emergencies and other medical care on admission in order to reduce mortality in this age

group.

Conclusion: The spectrum of medical emergencies and the pattern of mortality indicate a mixed disease burden of infective and non-communicable diseases; with cardiovascular diseases and HIV/AIDS related infectious as the most significant contributors. There is need for action to improve on the responsiveness of our healthcare system to cope with this trend of disease pattern in our emergency rooms and reduce mortality from medical emergencies. Therefore, these conditions should be given higher priority in the planning of emergency care and health system response.

In addition, the current efforts in scaling up access to antiretroviral therapy and treatment of opportunistic infections should be intensified in order to make HAART and other related treatment readily available to HIV-infected individuals.

The implementation of integrated community based programs for the prevention of NCDs is advocated in order to improve disease awareness and good health seeking behaviour for NCDs. This is expected to enhance disease control and promote earlier presentation which is expected to improve NCD related healthcare outcome.

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