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Full Length Research Paper

Patterns of medical causes of deaths in adult accident and emergency department of a tertiary health centre situated in a rural setting of a developing country

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Abstract

There are scarce data available on adult mortality from medical causes of deaths and almost none existed for a rural setting in Nigeria. Therefore, this study aimed at patterns of mortality and to determine the frequency and causes of deaths in a tertiary health centre located in a rural area of Nigeria. This retrospective study was carried out of all deaths recorded at the accident and emergency department of the Federal Medical Centre Ido Ekiti, Ekiti State, Southwest Nigeria from January 2011 to December 2012. Data was analyses using SPSS version 16 software. A total number of 92 deaths were recorded from 1769 patients' attendance with a crude mortality rate of 5.2% during the study period and there were 52 male deaths (56.5) and 40 female deaths (43.5%) with male to female ratio 1.3:1. The age range was 18 to 87years averaging 52.49 + 18.78years with more deaths occurring in the young and middle ages. The most frequent cause of deaths was non-communicable diseases with stroke topping the list followed by hyperglycaemic emergencies. Our study suggests that non-communicable diseases affect a much higher proportion of people during their prime working years in the rural centre. This is of particular concern because of the scarce health care resources available and high level of poverty in rural population of Nigeria.

Keywords: Pattern of diseases, medical, accident and emergency, tertiary health centre, adult.

INTRODUCTION

Consistent estimates of cause-specific mortality are essential for understanding the overall epidemiological profile of disease in a population. The principal data source for these estimates is civil registration systems. This is lacking in Nigeria like most other African countries. In sub-Saharan Africa, about 80% of the reports were based on information from hospital records (Jamison et al., 2006). Majority of these studies (again 80%) focused on causes of maternal and child mortality (Jamison et al., 2006), whereas causes of adult male deaths were relatively neglected. A report made it known that the commonest cause of adult deaths is non-communicable diseases of which medical causes of deaths ranked highest (WHO, 2011). Sub-Saharan Africa is still predominantly rural, with the majority of its population based in rural setting (The World Bank Group, 2011). However, virtually all our hospital based studies were generated from tertiary health centres which almost all are located in the urban centres.

In view of the scarce data on cause-specific mortality in a rural setting in sub-Saharan Africa, coupled with the need for sound planning, financing and implementation of a sector-wide approach to health care issues in sub-Saharan Africa; this study aimed at highlighting the basic demographic patterns of mortality, and determining the frequency of medical causes of deaths in accident and emergency (A & E) department of a tertiary health centre located in a rural community in Nigeria.

MATERIALS AND METHODS

This study was conducted in the A & E department of the Federal Medical Centre Ido Ekiti, Ekiti State, South-west, Nigeria. It provides health care services to over 2.4 million population of Ekiti State (which is predo-

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Table 1. Attendance of medical patients between January 2011 to December 2012.

Gender	2011		2012		Total	
	N	(%)	N	(%)	N	(%)
Male	414	(51.2)	529	(55.1)	943	(53.3)
Female	395	(48.8)	431	(44.9)	826	(46.7)
Total	809	(100.0)	960	(100.0)	1769	(100.0)

Table 2. Age and Sex distribution of mortality for medical cases in A and E.

Age group (Years)	Male		Female		Total	
	N	(%)	N	(%)	N	(%)
18 - 44	16	(30.8)	16	(40.0)	32	(34.8)
45 - 64	17	(32.7)	15	(37.5)	32	(34.8)
>65	19	(36.5)	9	(22.5)	28	(30.4)
Total	52	(100.0)	40	(100.0)	92	(100.0)

$X^2 = 0.105$, df = 2, P-value = 0.949.

minantly rural) as one of the leading tertiary referral centres. It is located in a rural community of Ido Ekiti. It also receives patients from neighbouring states.

The study design was a descriptive, retrospective review of hospital records of medical patients attended to in A & E Department. The period of study was 2years, starting from January 2011 to December 2012. The population under study were adults of 18years and above with medical conditions whose deaths were certified within the A and E department. All prehospital and non-medical causes of death were excluded from the study. Hospital record utilized include: Nurses report books, death certificates, post mortem records and case notes. Data collected includes clinical causes of death, demographic information like age and sex. The clinical causes of death were arranged in order of decreasing frequency.

Data obtained were analysed using a computer with Statistical Packaging for Social Science (SPSS Inc. Chicago IL) version 16.0 software. Simple descriptive analyses including tables were generated. A P-value of <0.05 were considered significant. Ethics and research committee approval was obtained from the institution.

RESULTS

This study showed that a total number of 1769 patients with medical conditions attended the A & E between January 2011 and December 2012 (2years period). This consists of 943 males (53.3%) and 826 (46.7%) females with male to female ratio 1.1:1. There was a higher A & E attendance of males compared to females as shown in Table 1. In Table 2, total deaths recorded within the period of study were 92 with a crude mortality rate of 5.2%, age ranged 18 to 87years with mean of 52.49 $\pm$ 18.78years. Male deaths 52 (56.5%), age ranged 18 to 87years with mean of 54.19 $\pm$ 20.44years. The female deaths were 40 (43.5%) age ranged 18 to 80years with mean of 50.28 $\pm$ 16.37years. The female to female death ratio was 1.3:1 and there was no statistical significant difference between the mean ages for deaths in both gender (P-value = 0.32). The crude mortality rate for male and female were 5.5% and 4.8% respectively. Most deaths occurred below 65years of age with equal number of deaths occurring in the young and middle aged, each recording 32 (34.8%) deaths totalling 64 (69.6%).

Deaths from non-communicable disease were the highest, numbering 68 (73.9%) compared to communicable diseases numbering 24(26.1%). Stroke topped the list of the former with 16 (17.4%) deaths while sepsis topped the latter with 6 (6.5%) deaths, as shown in Table 3.

DISCUSSION

Hospital-based data have been shown to provide useful information for public health priority setting (Tornheim et al., 2007). This study indicates that males attend hospital more than the females for the treatment of medical conditions. This was consistent for the 2year period of study. This finding has been previously reported by Ogun et al. (2000). This may be related to unpublished observation that shows higher female population in religious houses for spiritual interventions and healing compared to males, and hence less tendency to patronize orthodox care.

The crude mortality rate from this study was 5.2%.

Table 3. Causes of patients' deaths of medical cases in A and E.

Causes	Number	%
Stroke	16	17.4
Hyperglycaemic emergencies	15	16.3
Heart failure	9	9.8
Sepsis	6	6.5
Hypertensive emergencies	5	5.4
HIV/AIDS	5	5.4
Chronic liver disease	4	4.3
Central nervous system infection	4	4.3
Tuberculosis	3	3.3
Anaemia	3	3.3
Acid peptic disease	3	3.3
Gastroenteritis	3	3.3
Haemoglobinopathies	2	2.2
Haematological malignancies	2	2.2
Acute renal failure	2	2.2
Community acquired pneumonia	2	2.2
Ischaemic heart disease	2	2.2
Chronic obstructive pulmonary disease	1	1.1
Bronchial Asthma	1	1.1
Upper gastrointestinal haemorrhage	1	1.1
Chronic kidney disease	1	1.1
Tetanus	1	1.1
Drug toxicity	1	1.1
Total	92	100.0

This high crude mortality rate may be related to delay in presentation or pre-hospital transfer, lapses in inter-hospital communication and limited hospital resources. There are scarce data on hospital based crude mortality assessment in medical conditions alone. However, one related study in A and E involving medical mortality conducted in an urban centre reported crude mortality rate of 6.6% (Onwuchekwa et al., 2003). The higher crude mortality rate recorded in this urban centre may be related to overstretched of facility and personnel required to attend to the huge population of the seriously sick people requiring urgent treatment compared to rural centre.

The young and middle aged adults constitute equal percentage of deaths (34.8% each) and each of them was greater than the percentage of death in the elderly (30.4%). These findings are of public health importance. Our study suggests that medical causes of deaths in this study affect a much higher proportion of people 69.6%during their active productive years as compared to developed countries (Mathers et al., 2009). The economic impact of this on the society resulting from lost productivity due to death is substantial and worrisome. This is of particular concern because of the scarce health care resources available in rural areas as well as in developing countries and the fact that infant mortality and infectious diseases remain serious public health challenges in this setting. Factors that may account for this early death include: ignorance, poverty, lack of health information, illiteracy, inclination to wrong custom/religious or traditional beliefs and lack of access to quality health care.

There were more male deaths compared to females, though of no statistical significance. This is similar to earlier reports which long recognized early death in men than women (Jneid et al., 2008; Lyoyd-Jones et al., 2009; Yusuf et al., 2001).

The leading causes of deaths in this study were non-communicable diseases (73.9%). This finding is in agreement with the recent World Health Organization report(WHO, 2011). In adulthood, deaths due to communicable diseases might have reduced as a result of better immunity in adults because of repeated exposure to infections and infestation; improved personal hygiene and environmental sanitation which has been a monthly wake up calls in most states in south western Nigeria, widespread awareness and administration of some vaccines might have also contributed.

The four leading causes of deaths in non-communicable diseases were stroke (17.4%), hyperglycaemic emergencies (16.3%), heart failure (9.8%), and hypertensive emergencies (5.4%). Study in A and E in an urban centre, by Onwuchekwa et al.

(2008) on medical causes of deaths agreed with non-communicable diseases as the commonest cause of death and stroke as the leading cause of deaths. However, HIV/AIDS (22.7%), sepsis (8.6%) and meningitis (6.0%) ranked second, third, and fourth causes of deaths unlike findings in this study. The leading causes of death from stroke mortality may be a reflection of quality of medical care available to patients at A and E department or may reflect a poor state of hypertension control which has been known to be the commonest aetiological factor in stroke (Martin et al., 2010; Amu et al.2005). Hyperglycaemic emergencies related death was high in this study probably because of poor access to quality health care, ignorance, poverty, delay presentation and strong believe in traditional or herbal cure. Deaths from heart failure and hypertensive emergencies may result from possible increase in cardiovascular disease deaths that were recently reported in a study done in suburban centre in Nigeria (Adeolu et al., 2010). In addition hypertension being the commonest cause of heart failure (Turay 2009; Adedoyin and Adesoye, 2005) and the commonest cardiovascular risk factor (Mukadas and Misbau, 2009) may therefore suggest poor control in this setting. It may also be attributable to late presentation or referral (Garko et al., 2004).

Sepsis topped the list of mortality from communicable diseases in this study unlike study conducted in an urban centre where HIV/AIDS was the commonest cause of deaths from communicable diseases (Onwuchekwa et al., 2003). Higher frequency of self-medication, more patronage of drug peddlers and delay presentation of infections may account for the finding in this study.

Tetanus was one of the lowest causes of death probably due to widespread availability of vaccine and routine immunization.

Renal failures are not common causes of deaths in this study probably as a result of available facility for dialysis and prompt referral to renal transplant centres. The higher deaths recorded in acute renal failure compared to chronic renal failure may be due to late presentation, and possibly underline causes like severe sepsis. Low death frequency from chronic obstructive pulmonary disease and bronchial asthma could be as a result of low smoking rate and allergy, as well as available expertise and facility to treat in the centre. Low mortality from ischaemic heart disease may be related to previous report of low prevalence of coronary artery disease risk factors among Southwestern Nigeria (Ezenwaka et al.1997) and less westernized life style compared to urban.

CONCLUSION

This study revealed that medical causes of death occurred predominantly in the young and middle aged adults. Deaths occurred more in men than women, and the commonest causes of deaths in medical illness was non-communicable diseases of which stroke topped the causes of deaths. In this rural setting, sepsis was the leading cause of deaths among communicable diseases. In recent years, the public health policies, which are set by government policymakers in these countries and by international agencies, have been to reduce infant and maternal mortality and to control infectious diseases. The results of the present study call for serious attention to be given to the consequences of non-communicable diseases in developing countries to mitigate the effect on reduced life expectancy and loss of economic force.

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