Gender Disparities In Mortality Among Medical Admissions Of A Tertiary Health Facility In Ilorin, Nigeria

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Citation

P Kolo, A Chijioke. *Gender Disparities In Mortality Among Medical Admissions Of A Tertiary Health Facility In Ilorin, Nigeria*. The Internet Journal of Tropical Medicine. 2008 Volume 6 Number 1.

Abstract

We retrospectively assessed sex-related differences in duration of hospital stay and mortality among medical admissions at the University of Ilorin Teaching Hospital (UITH), Nigeria between January 1996 and December, 2005. Seventeen thousand six hundred and fifty patients, consisting of 10,040 (56.9%) males and 7,610 (43.1%) females were admitted during the period under review. Of these, 4220 died which was made up of 2624 (62.2%) males and 1596 (37.8%) females with overall percentage mortality of 23.9%. Mortality rate was significantly higher (Chi^2=62.5, p=0.0001) in males (26.1%) than in females (20.97%). The percentages of deaths due to Human Immunodeficiency Virus (HIV)/Tuberculosis (TB), neoplasms and haematological disorders were higher in females than in males (p=0.0001, 0.0001 and 0.0001 respectively). However, deaths from gastrointestinal system and liver, and endocrine system were higher in males (p=0.0001 and 0.02 respectively) than in females. We recommend gender specific community interventions for the control of HIV/AIDS, TB and liver diseases in the population studied.

INTRODUCTION

The risk of dying is known to differ for men and women in terms of age at and cause of death [1]. The gender disparities depend on the environment, level of economic development and some biological factors. Available statistics showed that the life expectancy of females at birth exceeds that of males by three years (66 versus 63) in developing countries and by 7 years (79 versus 72) in the developed nations of the world [12]. Although, women generally have a higher life expectancy at birth, there is the concern that women in third world countries are disadvantaged in terms of mortality [3]. The increase in mortality among women in developing countries has been attributed to poor access to health care services, economic depression and negative cultural practices [4].

In the developed world, longevity is higher in females because of high quality of obstetric care and lower coronary disease risk profile compared with males. However, in developing countries, the life expectancy gap is narrowed by unfavourable socio-cultural factors and high maternal deaths among women [5].

Recent population studies have shown that most developing regions of the world are undergoing gradual epidemiological transition resulting in high burden of both communicable and non-communicable diseases [6]. The duration of hospital stay has also been observed to be inversely related to the mortality rate in the medical wards [7]. Although, we have recently reviewed the causes of death in medical wards of our hospital [8], but the influence of gender on the current trends in mortality among medical admissions has not been well defined. We therefore studied sex-differences in causes of death in the medical wards of UITH, Ilorin, Nigeria between January, 1996 and December, 2005 (ten years).

METHODS

UITH, Ilorin is a tertiary health institution strategically located in the North-Central zone of Nigeria with bed capacity of 515. One hundred and ten of the bed spaces are dedicated to the medical admissions.

In this retrospective study, information was obtained from hospital death register and case records of all patients who died during the period under review. The age, sex, occupation, principal diagnosis, duration of hospital stay, primary cause of death, type of previous treatment and post-mortem examination results were noted. The total number of admissions during the period was recorded. Most of the patients were referred either from private and/or government hospitals while some had self-referral or were brought by relatives in emergency situations. The data were analyzed using the SPSS statistical software version 15 and mean ±

SD was generated for continuous variables. Student t-test was used to compare means of continuous variables while chi-square test was used to test significance of difference between two proportions. P-value of <0.05 was taken as a measure of statistical significance.

RESULTS

Seventeen thousand six hundred and fifty patients, consisting of 10,040 (56.9%) males and 7,610 (43.1%) females were admitted during the period under review. Of these, 4220 died which was made up of 2624 (62.2%) males and 1596 (37.8%) females (37.8%) with overall percentage mortality of 23.9%. Mortality rate was significantly higher (Chi ^{2} =62.5, p=0.0001) in males (26.1%) than in females (20.97%) with sex ratio (number of male deaths per 100 female deaths) of 160:100. However, mean age of the deceased females (46.9±19.4years) was similar to that of the males (46.7±17.9years), p=0.87.

Table 1 shows age distribution of the death patients by gender. The percentage of women aged 10-19 who died (5.3%) was higher (p=0.03) than that of males (3.9%). The mortality rates were however similar in females and males aged 20-49 years. On the other hand, percentage of deceased males in the age group 50-59 years was higher (p=0.0001) than that of females. The proportion of deceased females who were 80 years and above was higher (p=0.0001) than that of males. Sex differences in duration of hospital stay before death are displayed in table 2. The mean duration of hospital stay before demise was significantly longer (p=0.0001) in females (15.7 ±26.1 days) than in males (10.9 ±17.7 days). The percentages of males who died on the 1 st day, 6-10 th and 11-20 th day of admission were higher (p=0.0001) than females. However, more females died after 30 th day of hospitalization.

Figure 1

Table 1: Age and sex distribution of the death patients

Age group	Males		Females		Chi 2	P-value
(years)	NO	%	NO	%		
10-19	102	3.9	84	5.3	4.85	0.03*
20-29	430	16.4	283	17.7	1.16	0.28
30-39	449	17.1	264	16.5	0.28	0.59
40-49	413	15.7	258	16.2	0.21	0.65
50-59	486	18.5	198	12.4	27	0.0001*
60-69	354	13.5	228	14.3	0.53	0.47
70-79	264	10.1	179	11.2	1.31	0.25
≥80	126	4.8	102	6.4	4.9	0.03*
Total	2624	62.2	1596	37.8	62.5	0.0001*

NO- Number

*statistically significant

Figure 2

Table 2: shows sex differences in duration of hospital stay before death

Duration	Males		Females		Chi2	p-value
(Days)	NO	%	NO	%		
1	532	20.3	252	15.8	13.4	0.0001*
2-5	774	29.5	486	30.5	0.49	0.48
6-10	558	21.3	264	16.5	17.4	0.0001*
11-20	402	15.3	258	9.8	26.3	0.0001*
21-30	180	6.9	114	7.1	0.05	0.82
>30	178	6.8	222	13.9	58.7	0.0001*
Mean ±SD	10.9 ±17.7		15.7 ±26.1			0.0001*

NO-Number, SD-standard deviation.

*Statistically significant

The systemic distribution of causes of death by gender is shown in table 3. Although, infections and diseases of the central nervous system were leading causes of death in both sexes, the percentage of females (38.4%) who died from infections was significantly higher (p=0.006) than that of males (34.2%). HIV/TB infections either alone or as co-infection accounted for majority of deaths due to infections in females (table 4). While deaths from gastrointestinal system and liver, and endocrine system were higher in males (p=0.0001 and 0.02 respectively), deaths due to neoplasms and haematological disorders were higher in females (p=0.0001 and 0.0001). However, deaths from nervous, cardiovascular, renal and respiratory systems were similar in both sexes. The top ten causes of mortality in both females

and males are displayed in table 4. HIV/TB and septicaemia were the first and second commonest causes of death in the two groups respectively. Chronic liver disease ranked third in males, followed by stroke, chronic heart failure, chronic renal failure, meningitis, respiratory failure, diabetic complications and primary liver cell carcinoma in that order. In the females, stroke was the third commonest cause followed by chronic heart failure, chronic renal failure, meningitis, anaemia, leukaemia/lymphoma and primary liver cell carcinoma in descending order.

Figure 3

Table 3: shows systemic distribution of causes of death by gender

Sno	Causes of death	Males		Females		p-value
		NO	%	NO	%	
1	Infections	898	34.2	603	38.4	0.006*
2	Nervous system	339	12.9	216	13.5	0.6
3	GIT and liver	346	13.2	130	8.1	0.0001*
4	Cardiovascular	215	8.2	148	9.3	0.2
5	Neoplasms	155	5.9	143	9.0	0.0001*
6	Renal	199	7.6	97	6.1	0.06
7	Respiratory	190	7.2	98	6.1	0.2
8	Endocrine	146	5.6	64	4.0	0.02*
9	Haematological	69	2.6	75	4.7	0.0001*
10	Miscellaneous	67	2.6	22	1.4	0.01*
	Total	2624	100	1596	100	

NO- Number, GIT-gastrointestinal

*Statistically significant

Figure 4

Table 4: Top ten causes of death according to gender

Sno	Males	Frequency	Females	Frequency
1	HIV/TB	380	HIV/TB	314
2	Septicaemia	289	Septicaemia	187
3	CLD	228	Stroke	126
4	Stroke	192	CHF	114
5	CHF	180	CRF	96
6	CRF	138	Meningitis	72
7	Meningitis	132	Anaemia	48
8	Resp. failure	108	Diabetic coma	42
9	Diabetic coma	102	Leuk/Lymp	36
10	PLCC	66	PLCC	36
11	Others	812	Others	528
	Total	2624		1596

HIV-human immunodeficiency Virus, TB-tuberculosis, CLD-chronic liver disease, CHF-chronic heart failure, CRF-chronic Renal failure, Resp-respiratory, Leuk-leukaemia, Lymp-lymphomas, PLCC-primary liver cell carcinoma

DISCUSSION

The results of the present study indicate that the number of admissions and mortality rate in the adult female medical wards were less than that of male medical wards. This is in accord with earlier studies which showed that females have a lower mortality and longer life expectancy than males [9]. Although, socio-cultural factors may account for lower hospital admissions among women studied, this does not explain the lower mortality rate among them. The precise explanations for the gender difference in life expectancy still elude scientists because of the apparent complex interplay of biological, social, and behavioural conditions. However, the observed lower risk of coronary artery disease and lower rate of cigarette smoking among females compared with males may contribute significantly to the difference [10].

Age is a recognised natural risk factor for death [11]. In this study, the percentage of deceased females in the age group 10-19 was higher than that of males. The higher adolescent deaths among the females may be related to higher rates of HIV/TB infections among them than males [12]. However, percentage mortality among males in age group 50-59 years

was significantly higher than in females. This may be due to higher risk of cardiovascular deaths among males of this age group than females. In contrast, more deaths occurred in females aged 80 years and above in this study which may be a reflection of the fact that there are more females than males in this age group in most populations of the world [9] .

Early mortality following hospitalization occurred more in males than females. This may be related to health seeking behaviours in the population studied. In our environment, many women are not gainfully employed and the family economic power rest with the men [13] . Women who are very sick may likely die before decisions are made to take them to the health care facilities which may lead to under-representation of their mortality profile. It is also possible that the inverse relationship between hospital stay and mortality rate in males may be related to late presentation to hospital due to ignorance and poverty. In related study by Garko et al, short duration of hospital stay was observed to be associated with increased mortality [7] .

Although infections were the leading causes of death in this study, the percentage of females (38.4%) who died from infections was significantly higher (p=0.006) than that of males (34.2%). The higher percentage (19.5%) of women who died from HIV/TB infections compared to males (14.4%) contributed significantly to the sex difference in mortality due to infections. Globally, heterosexual transmission is the most important mode of acquisition of HIV infection in women [14] . Some of the factors identified in women for engaging in high risk sexual behaviours include; financial gains, low self esteem, need to feel loved by a male figure, alcohol and drugs [14] . The on-going government programmes designed to empower women financially and discourage girl child abuse should be vigorously pursued in order to reduce the burden of HIV infection among women.

Deaths from gastrointestinal tract, liver and endocrine disorders occurred more in males than in females. Ethanol abuse among males and hepatitis B viral infection may account for this difference in mortality [15] . On the other hand, more females died from haematological disorders and neoplasms than males.

In conclusion, gender differences have been observed in duration of hospital stay, mortality and causes of death in our medical wards with females having longer stay before death and lower death rate compared with males. Although, the overall mortality was higher among males, the risk of dying from infections, HIV/TB, haematological disorders and neoplasms was higher in females. While more males died from chronic liver disease and endocrine diseases. The percentages of deaths from cardiovascular, renal and nervous systems were similar between the two groups. We recommend gender specific community interventions for the control of HIV/AIDS, TB and liver diseases in the population studied.

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