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A 6-Month Review of Medical Admissions in a Nigerian Teaching Hospital

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Abstract

Purpose: To provide an overview of morbidity and mortality in the medical wards of a teaching hospital and to generate discussions among staff members with a view to improving patient outcomes and data handling.

Methods: A retrospective survey of admissions and mortalities in the medical wards of the University of Benin Teaching Hospital was undertaken from 1st January to 30th June 2006, using ward Record and Change books, and copies of death certificates. Morbidity data were assessed for two medical wards and mortalities for all medical admissions within the period under review were evaluated.

Results: Health information was managed entirely manually. Data sources were quite often inaccessible or mutilated, and the utility of available data was limited by incomplete and incorrect documentation. No clinical coding of morbidities or mortalities was available. Human immunodeficiency virus (HIV) infection and its complications accounted for significantly more female than male admissions (26.1% and 16.2% respectively; $p=0.005$), and for more female than male deaths (34.6% and 29.6% respectively; $p< 0.0001$). Most deaths occurred between midnight and the start of the working day, with a second peak during prime working hours.

Conclusions: Less than optimal health information management was apparent in the health facility studied. Mortality among the patients was highest in HIV-infected patients than other diseases. Capacity building and appropriate infrastructural development is required to improve the management of vitally important health information.

Keywords: Health information; Morbidity; Mortality; Medical Wards; Nigeria.

Obehi A Akoria*

Evelyn I Unuigbo

Department of Medicine, University of Benin Teaching Hospital, Benin City, Nigeria

***For Correspondence:**

Tel: 234-805-9855-501
E-mail: obakoria@yahoo.com

Introduction

Morbidity and mortality statistics are an important resource for research in any country. Unfortunately in developing countries there is a paucity of such data¹. This painful reality impacts not only on research, but also denies practitioners access to a potentially useful tool for the improvement of the quality of practice. Health information management is problematic in Nigeria² even in the present age of information and communication technology.

Good practice requires that medical professionals are able to critically reflect upon the processes and outcomes of their interventions, and morbidity and mortality reviews within hospital departments should provide opportunities for such introspection. As a step towards encouraging such critical analysis the Department of Medicine, University of Benin Teaching Hospital, Nigeria introduced a bi-annual review of morbidities and mortalities.

A survey of medical admissions at the University of Nigeria Teaching Hospital, Enugu in South East Nigeria in 1998 showed that neurologic diseases were the leading causes of admission into medical wards, followed by cardiovascular diseases, renal, gastrointestinal and respiratory diseases in that order. Human immunodeficiency virus (HIV) infection and its complications accounted for less than 8% of admissions in that study². At the Ahmadu Bello University Teaching Hospital in Northern Nigeria, infections were the leading causes of admission followed by hypertensive cardiac disease; less than 3% of admissions were accounted for by HIV infection³.

The main objectives of this study were to provide an overview of the morbidities and mortalities in the medical wards of the University of Benin Teaching Hospital and to stimulate discussions geared towards improving patient outcomes, and more efficient data management.

Methods

The study was carried out in the medical wards of the University of Benin Teaching Hospital (UBTH), Benin City, Nigeria. The hospital was founded in 1973, and it is the largest health care facility in the South South geopolitical zone of Nigeria which comprises six states. The UBTH is situated in Benin City which is the capital of Edo State. The city has an estimated population of over 800,000. Annual patient attendance in the hospital is over 88,000.

Medical patients in the UBTH are routinely admitted into the female and male medical wards each of which is 30-bedded. Pressure on bed spaces necessitated the provision of the 18-bedded male medical annex ward in 2003. In addition medical patients are admitted into surgical and gynaecological wards when there are insufficient bed spaces in the regular medical wards.

We undertook a 6-month review of medical admissions into the University of Benin Teaching Hospital, Benin City, Nigeria, between January 1 and June 30, 2006 as a step towards more extensive reviews in the future. Morbidity data were obtained from the respective Ward Change Books and Ward Record Registers. Mortality data were also obtained from these sources as well as from the ward copies of death certificates. The sampling approach was to review all (100%) admissions and mortalities within the period under review. However, because of constraints imposed by missing data a convenience sample of all (100%) admissions into the two major medical wards - the male and female medical wards respectively - was taken. These admissions were evaluated retrospectively for patients' demographic details, admission and discharge dates, diagnoses and outcome of admission. Mortality data were obtained for all (100%) medical admissions in the male and female medical wards as well as the other wards into which medical patients were admitted and included date, time and cause of death.

Data were copied into data collection sheets and were analyzed using Microsoft Excel and InStat Graphpad software. Statistical significance was set at $p \leq 0.05$.

Ethical clearance was obtained from the University of Benin Teaching Hospital Ethics Committee.

Results

Four hundred and two admissions were reviewed, comprising 156 females (38.8%) and 246 males (61.2%). Age range was 16 - 101 (mean 46.4 ± 18.7) years and 16 - 91 (mean 48.8 ± 17.4) years for females and males respectively. Further socio-demographic characterization of these patients was not possible because of the paucity of such data. Admitting diagnoses are shown in Figure 1.

Human immunodeficiency virus (HIV) infection and related complications were the most prevalent causes of morbidity in both sexes, accounting for 26.1% of morbidities in females and 16.2% in males, a difference that was statistically significant ($p=0.005$).

Cardiovascular disease, chiefly hypertension-related cardiac failure was the second most common cause of morbidity in females,

accounting for 20.5%. Neurologic diseases, chiefly cerebrovascular accidents were the third leading cause of morbidity in females, and the fourth leading cause in males after renal and cardiovascular diseases (Figure 1). There were a total 308 mortalities from all medical admissions. This includes mortalities from wards outside the two medical wards for which morbidity data are presented. Mean age was 47.9 ± 16.9 (range 22 - 92 years) and male: female ratio was 1.3:1 (56.5%: 43.5%). Hospital stay before mortalities ranged from 1 - 63 days (mean 9.3 ± 10.3 days).

The distribution of mortalities by periods of occurrence is illustrated in Table 1. The majority of mortalities occurred in the hours between midnight and 8 am.

HIV-related complications were the most common causes of mortality, accounting for 43.5% of all deaths. Females made up 65.1% of HIV-related deaths and males 34.3%, a difference that is highly significant ($p < 0.0001$). Ages of patients who died from HIV-related complications ranged from 23 - 86 years (mean 42 ± 12 years). Central nervous system complications, tuberculosis and anaemia were the three leading causes of HIV-related deaths.

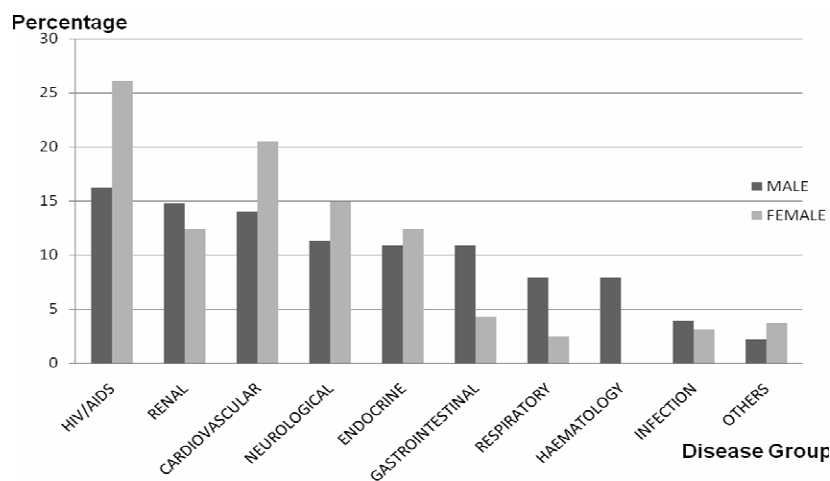


Figure 1: Morbidities in two medical wards according to disease category

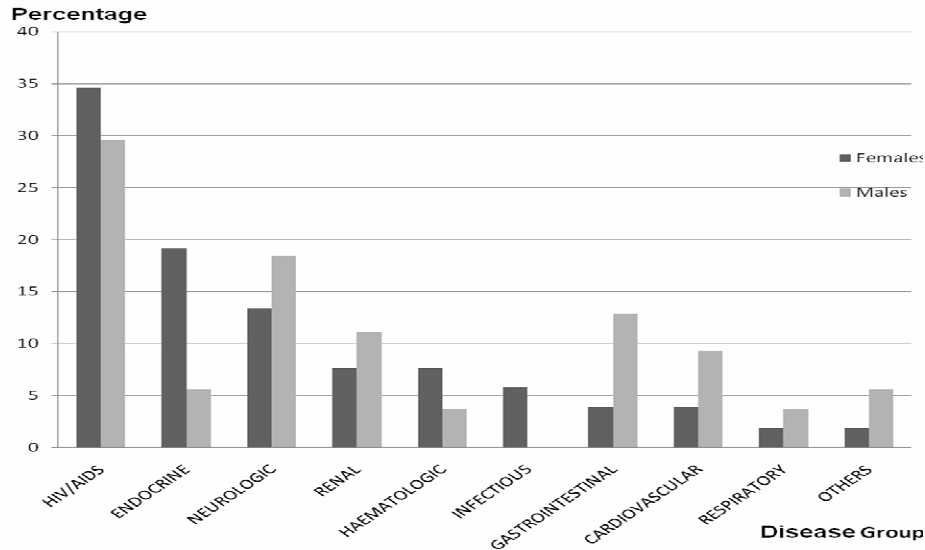


Figure 2: Mortalities for all admissions according to disease category

Table 1: Distribution of mortalities by time of occurrence

Time of occurrence	Percentage of deaths
8 am – 2 pm	31.0
2 pm – 8 pm	23.9
8 pm – 12 midnight	11.5
12 midnight – 8 am	33.6
Total	100.0

Endocrine disease, principally diabetes mellitus was the second leading cause of deaths in females, followed by neurologic disease, principally hypertension-related cerebrovascular accidents. In males cerebrovascular accidents and chronic liver disease were the second and third leading causes of deaths (Figure 2).

Discussion

A striking finding in this study is the inadequacy of documentation, storage and handling of health information in ward record books. This highlights the need for a well-managed database if vital information for teaching, research, policy-making, advocacy and planning is to be preserved.

In a study of fifty randomly-selected Nigerian hospitals, computer software for data management was used in fourteen, out of which only three were government-owned⁴. Manual data entry which is the current practice in most health facilities requires adequate manpower and makes record keeping cumbersome, apart from being time-consuming and inefficient. Computerized data management is preferable and has several advantages including time saving, compactness, durability and ease of access to data. Hospital managers commonly cite the costs of computerization as a limitation to making computers and required software available for data management, but the potential gains need to be appropriately weighed against perceived costs.

A glaring gap in the studies of morbidity and mortality that have been undertaken in developing world settings is the lack of uniformity in disease classification. Our findings were not different. The World Health Organization (WHO) International Statistical Classification of Diseases (ICD) was developed in the early 1990s to address this gap, with a view to facilitating uniformity of disease coding and information exchange between various settings across the world⁵.

Involvement of the Medical Records Department in data management in hospital wards would foster uniformity of entries, central coordination and effective data linkages, which would improve output of health information.

Our findings underscore the reality that even in tertiary hospital settings in Nigeria disease documentation is still undertaken rather arbitrarily. It would therefore be difficult to make comparisons locally or nationally, not to talk of internationally. A paradigm shift towards modern health information management requires the cooperation of administrators at local, regional and national levels to provide the required ICD materials as well as funds for capacity building and infrastructural development⁶.

The large contribution of HIV infection and the Acquired Immunodeficiency Syndrome (AIDS) to morbidity and mortality is notable. While our data cannot be extrapolated to infer local HIV prevalence, the evidence provided by this study highlights the importance of HIV infection as a principal cause of morbidity and mortality in Nigeria. Bearing in mind that the cases which present in a tertiary hospital setting represent the tip of the iceberg, the need to employ all possible resources to control the raging epidemic of HIV/AIDS is evident. The role of HIV infection in causing increased morbidity and mortality in females is also highlighted by our findings. Women appear to be an endangered species in the epidemic and several factors may contribute to this. Polygamy which is culturally acceptable in the local context makes it possible for an infected male to transmit the infection to his female partners (without being 'unfaithful'). Disempowered females are more vulnerable to acquiring the infection and are less likely to access health care at the early stages of the disease than more empowered females or their male counterparts. Our findings highlight the need for locally relevant and gender-sensitive interventions in tackling the scourge of HIV/AIDS.

A study of mortalities in a tertiary hospital in Northern Nigeria showed that only 2.8% of total admissions were HIV-related⁶. In a more recent study from a teaching hospital in South Eastern Nigeria, the majority of admissions into medical wards were on account of non-communicable diseases with HIV-related cases contributing only 6.7%⁷. The distinctly large proportion of morbidities attributable to HIV and its complications that we found may reflect differences in local morbidity patterns, trends in HIV prevalence over time, and/or may suggest an increase in health care-seeking behavior among HIV-infected persons in the setting in which this study was undertaken. The latter is more likely to be a fall-out of the availability of donor-supported care for infected persons that is available in the UBTH, rather than of reduced stigmatization of HIV-infected persons as suggested by some other authors⁶.

There is a risk of the public health importance of non-communicable diseases such as hypertension and diabetes mellitus being down played in the face of efforts to contain the epidemic of HIV/AIDS. However our findings provide evidence for the need to control prevalent non-communicable diseases (hypertension, diabetes mellitus and renal diseases) in the interest of public health.

We used four-hour intervals as our framework for analyzing the times during which deaths occurred in order to capture the working times of attending medical and nursing staff. The working day officially begins at 8am, and ends at 4pm. House officers and resident doctors usually report for work before 8am, and call duty begins at 4pm, ending at the start of the working day. Nurses on morning duty begin work at 8am, and hand over to those on afternoon duty at 2pm, while those on night duty take over between 7 and 8pm. It was therefore reasonable to use four-hour intervals except for the period between 8pm and 8am during which the same set of medical and nursing

staff are on duty (doctors on call, and nurses on night duty).

If deaths occurring during the day were summed into a 12-hour period, and compared with the 12-hour night period, the majority of deaths would be seen to have occurred during the morning and afternoon duty periods. However, such a comparison might be flawed because this period has two sets of medical and nursing staff attending to patients, unlike the night time which has one set in either category on duty. It is difficult to posit reasons for the timing of deaths as observed in this study because these are preliminary findings which need to be further explored for any categorical conclusions to be drawn.

Limitations

In many cases, details of patient identification, dates of admission and/or discharge were unavailable. Sometimes required data were completely inaccessible; recording books were torn or had mutilated sheets, while some records had been disposed of, or were under 'lock and key'. Changes made to patient diagnoses in the course of their hospital stay were not reflected.

Conclusion

HIV infection and its complications are the leading causes of morbidity and mortality in the medical wards of the University of Benin Teaching Hospital. There is a distinct female predominance in both morbidity and mortality associated with the infection and interventions to control the epidemic should be locally relevant and gender sensitive. Non-communicable diseases such as hypertension and diabetes mellitus are important causes of morbidity and mortality. Interventions to improve public health with respect to these conditions should also be prioritized.

Critical health information that could be utilized for health research, teaching, health care planning and policy making is lost as a result of less than optimal handling, processing and storage of data. Human capital and infrastructural development for modern health information management is required.

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