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Original Research Article

One year mortality review at the Accident and Emergency unit of a Nigerian tertiary institution

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Abstract: The accident and emergency unit is the first point of call for all critically ill or injured patients in any hospital and varying degrees of severity of various illnesses and injuries present here, some leading to death within the period of admission. This study was carried out to determine the pattern of patient deaths at the accident and emergency unit of the Ladoke Akintola University of Technology Teaching Hospital, Osogbo, Nigeria. A review of the cases presenting to the accident and emergency unit with regards to mortality over a one year period is presented. During the period of the study, a total of 2326 patients were seen at the accident and emergency unit and the number of deaths was 70 (3%). Regarding the mortality, the age ranged from 16 to 85years, with a mean age of 47 years. The male to female ratio was 1.5:1. The leading causes of death were Infective (25.8%), Trauma (21.4%), cerebrovascular events (15.7%), and Diabetic complications (14.3%) amongst others. The majority of infective deaths (65.2%) occurred in those aged 21-50 years, of which 34.5% were Respiratory system related. The peak age of trauma related deaths ranged between 31-40years, mostly following multiple injuries sustained in Road Traffic Accidents. Most deaths (64.3%) occurred within 24 hours of admission. Infections and Trauma were the leading causes of deaths, with most deaths occurring within 24 hours of accident and emergency admission. Multiply injured patients took the lead amongst Trauma patients while Respiratory – related infections were the most amongst infective causes.
Keywords: Deaths, Accident and Emergency, Infections, Trauma.

INTRODUCTION

The Accident and Emergency (A&E) unit is the first point of call for all critically ill or injured patients in any hospital across the world. In the A&E department, varying degrees of severity of various illnesses, clinical conditions and injuries are seen and managed, with many of the patients being treated to recovery, and some others inevitably dying within the period of admission at the A&E.

Various authors have alluded to the fact that the outcome of management of patients at the A&E of any hospital gives an insight to the quality of care available in the hospital [1-3]. Many factors have been identified for deaths occurring in the A&E. These include poor pre-hospital care for ill and injured patients, distance between the patient's place of abode and the hospital, and the nature of illness or injury. Also the paucity of skilled manpower in many clinical fields especially in trauma, and poorly equipped A&E units all affect the mortality pattern [1,4].

The Ladoke Akintola University of Technology Teaching Hospital (LTH), Osogbo located in the heart of the city of Osogbo in Osun State, Southwestern Nigeria, has an established A&E department which is overseen by a Consultant General Surgeon. This study is aimed at highlighting the causes of death, the demographic data and patterns of mortality at the A&E unit of the LTH, Osogbo. It is hoped that this will add to the data base, and help to suggest possible ways of reducing the mortality in our emergency units.

MATERIALS AND METHODS

A retrospective review of the records of patients that died during admission at the A&E unit of the LTH Osogbo was carried out over a one year period, from January to December, 2013. Information was retrieved from patients' case notes, nurses' registers, admission and discharge diaries, death certificates and mortuary registers. Variables evaluated include the patients' demographic data, diagnosis at presentation, and final (clinical) diagnosis/cause of death and duration of admission. Patients who were

brought in dead (BID) or found to be dead on arrival (DOA) were excluded from the study. The data generated was analyzed using the SPSS version 16 and the results are illustrated using charts and tables.

RESULTS

During the period of the study, a total of 2326 patients were seen at the A&E. There were 1317 (56.6%) males and 1009 (43.4%) females giving an admission Male: Female ratio of 1.3:1. Seventy patients died during this period, giving a crude mortality rate of 3%. There were 42 (60%) male deaths and 28 (40%) female deaths, giving a mortality Male: Female ratio of 1.5:1. (Fig. 1.)

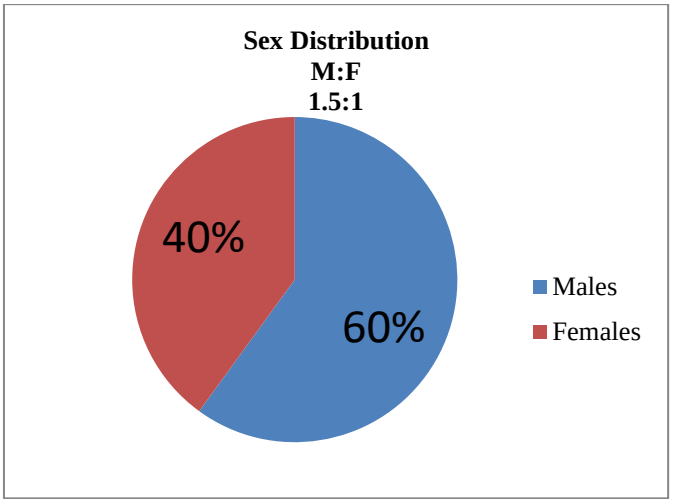

Fig-1: Sex Distribution.

The age range of the patients who died was between 16 and 85 years, with a mean age of 47.4 ± 6.2 years. The highest number of deaths recorded was within the 31-40 year range (Table 1). Most (63%) deaths occurred in patients less than 50 years old while deaths occurring in patients 50 years and above were 37%. Only 9 (12.8%) deaths occurred in patients above 70 years (Table 1).

Table 1: Age Distribution

Age range (years)	No.	Percentage
11-20	5	7.1
21-30	10	14.5
31-40	16	22.8
41-50	13	18.6
51-60	9	12.8
61-70	8	11.4
71-80	7	10.0
>80	2	2.8
Total	70	100

Infective conditions were the leading (25.8%) cause of death followed by Trauma (21.4%), cerebrovascular events (15.7%) and Diabetic complications (14.3%) as shown in figure 2. Most of the infective deaths were in patients who had been managed by other centres prior to referral. These include private hospitals (34%), traditional homes (22%), chemists (15%), and those indulging in self-medication (29%). The majority of infective deaths ranged from 21-50 years (65.2%) with a mean age of 44 years and 34.5% of these were Respiratory system related.

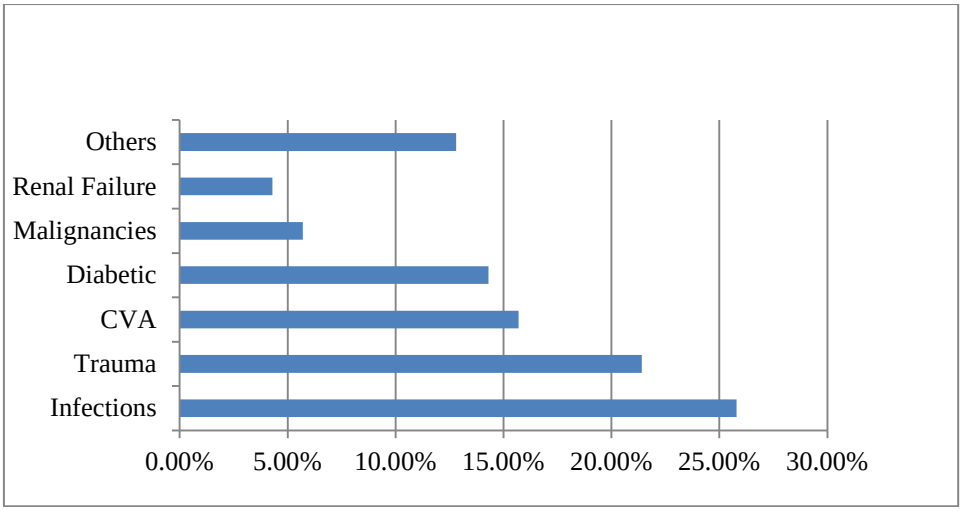

Fig- 2: Causes of death

The peak age of trauma deaths ranged between 31- 40years (40%), (fig.3). Most of these deaths occurred due to injuries sustained from Road Traffic Accidents (RTA), and majority of the RTA-related deaths were in multiply injured patients (65.2%).

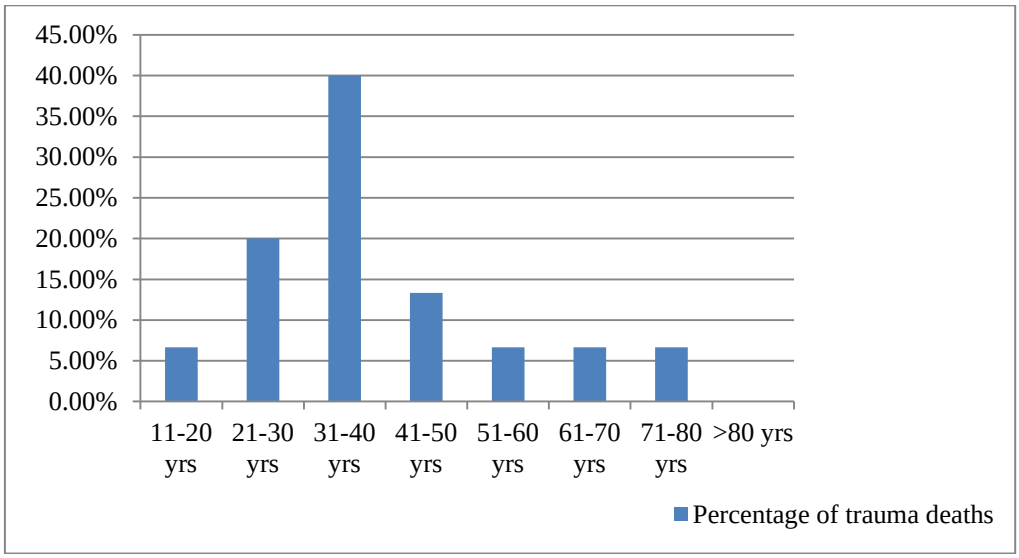

Fig-3: Trauma deaths according to age

Many of the deaths occurred in patients who had been ill for prolonged durations, as the duration of symptoms before admission was more than one week in 47% of them (fig. 4)

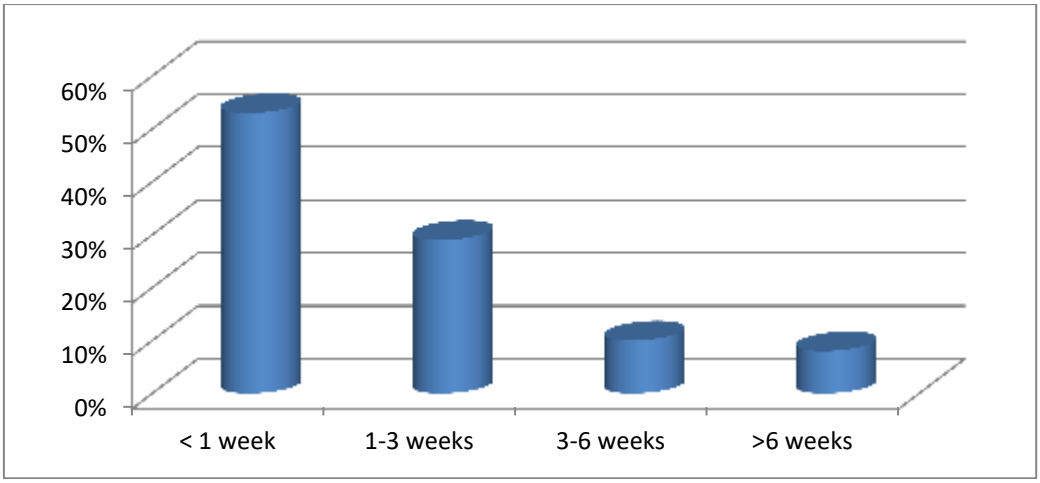

Fig-4: Duration of symptoms before admission

Sixty-four percent of deaths occurred within 24 hours of admission to the A&E (fig.5).

Post-mortem examination was requested for in 40% but was not done in any due to refusal by the relatives of the deceased.

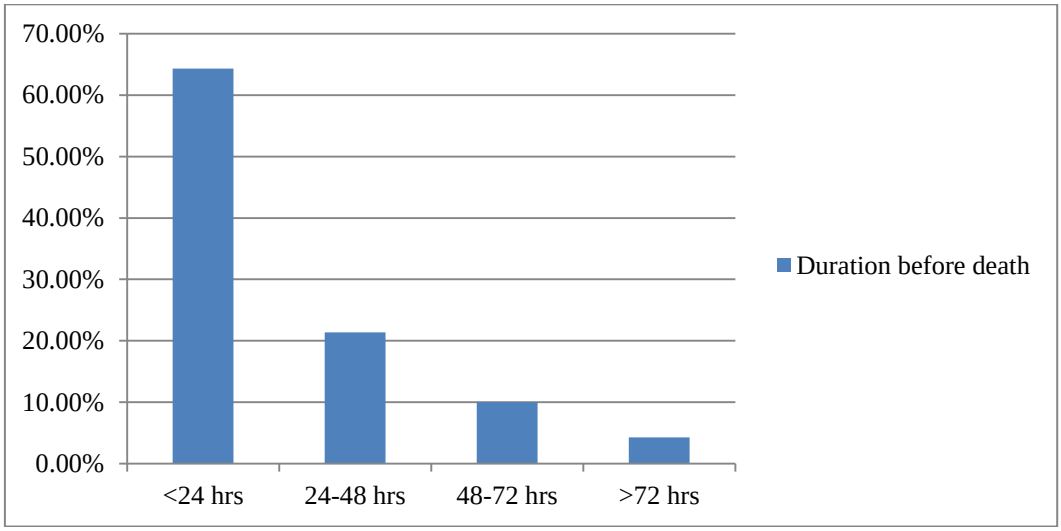

Fig- 5: Duration before death

DISCUSSION

Ladoke Akintola University of Technology Teaching Hospital, Osogbo is located in the heart of the city and it serves the capital city and other towns and villages in the state and neighbouring states (a population of over four million people) along with its sister tertiary health centre, the Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, about an hour's drive apart.

A total of 70 deaths were recorded out of the 2326 patients that were treated in the A&E over the period of the study giving a Crude Mortality Rate (CMR) of 3% in this study. This is comparable to many other studies that give Crude Mortality Rates within the 2-6% range [1-5]. Ekere *et al.;* [1] reported a low CMR of 2%. Other authors [3, 5-7] reported rates between 3.3% and 6.05%. These are however in contrast to a report by Uzoechina *et al.;* [8] in Lagos who reported a rate of 10.1%.

The Male: Female ratio of 1.5:1 is corroborated by most studies locally and internationally. Reports by Ekere et al, Chukwezi *et al.;*, Dim *et al.;* and Wyatt *et al.;* (Scotland) [1, 3, 6, 9] all show a male preponderance in A&E attendance and deaths. Accounting for this may be the more active and risky lifestyle of males as compared to females, engaging in more violent and high risk activities [3, 5].

Majority of the deaths in our study occurred in patients below 50 years (63%) with the highest number of deaths in the 31-40 year age range. This is consistent with many other studies in this environment where the under-50s were found to be the majority as reported by Ekere *et al.;* [1], Adesunkanmi *et al.;* [2] and Dim *et*

al.; [6]. This age group constitutes the most active group in any population and their death results in economic loses to their families and the entire society [1, 4]. Majority of the deaths were due to medical illnesses, with infection-related deaths being the most common. Deaths due to respiratory tract infection were the highest, amongst these infective deaths. This again is similar to other reports [2, 6, 8].

Some other studies have reported cardiovascular diseases as the most common cause of medical-related deaths [1, 8, 12] in contrast to our own finding of infections while some reported trauma as the most common cause of mortality [3].

Road Traffic Accident (RTA) was the most common cause of trauma deaths in our study and this is similar to many other reports [2, 5, 11-13]. However, a contrasting pattern is seen in Ido-Ekiti [5] where RTA accounted for only 13.1% of trauma deaths. This was attributed to the absence of high speed permissible roads in the state, and the rural nature of the centre in which the study was conducted.

Our report of the peak age range of 31-40 years among the RTA victims is slightly different from the Chukwezi *et al.;* [3] report with trauma deaths occurring more in those 20-31years old. It has been noted that these ages are more involved because of their higher mobility and activity [5,10].

Most (64.3%) of the deaths in our study occurred within 24 hours of admission to the A&E. Ekere *et al.;* [1] reported a similar finding of 70.9%, while Ugare *et al.;* [4] gave a contrasting report in which 56% spent up to 48 hours in the A&E before their demise.

Majority of the patients that died within 24 hours are those that had severe illnesses being previously managed by private hospitals and traditional medical practitioners, a finding that was corroborated by Ekere *et al.;* [1] in Port-Harcourt and Ofoegbu *et al.;* [14] in Ilorin. Also, most of the trauma victims had delayed presentation to the hospital due to poor pre-hospital care and ambulance services, accounting for a good number of them presenting in shock, some in the irreversible stage. Death due to delay is a phenomenon that is not new in our environment, as corroborated by other studies, stating reasons similar to ours[1-3,12,14,15]. However, it is hoped that this trend changes significantly and rapidly. It is hoped that the newly introduced Osun State Ambulance Services (O-Ambulance) with ambulances positioned at various locations in the state including the highways to help convey patients requiring emergency care to the nearest hospital while offering initial pre-hospital care, will go a long way in improving Pre-hospital care and ensure prompt transfer of patients to appropriate health centres, especially in trauma related conditions. The general non-acceptance of autospy by the bereaved relatives due to cultural and religious beliefs largely compromises the possibility of finding the real causes of death.

Despite the benefits of autopsy, there is a decline in autopsy rates worldwide and Nigeria is not left out. Oluwasola *et al.;* [16] in Ibadan reported a decline in autopsy rates from 19% in 1984 to 3% in 2003. Cultural and religious beliefs, poor request by clinicians and the added cost of autopsies contribute to the low rates [3, 16]. However, with poor investigative modalities and the need to pay before investigations are done, many diagnoses may not be possible without autopsy in developing countries like ours. It thus cannot be overemphasized that a change of attitude for better acceptance of autopsy by relatives of the deceased would immensely contribute to closing up the open ends of many questions regarding the final cause of death in A &E patients.

CONCLUSION

Medical conditions are the leading cause of death in our A&E department, followed by Trauma. That most patients die within 24 hours of admission suggests poor pre-hospital care especially for trauma patients, and poor management by the several “help sources” that patients would have visited before finally presenting to the hospital. Better community health education which would encourage better health-seeking behavior, coupled with provision of support services to assist in early presentation to the hospital would help in reducing the mortality in our emergency units.

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