Analysis of presenting complaint and co morbidity of the mortality at Patan Hospital Emergency Department

Bajracharya S
Patan Academy of Health Sciences (PAHS), Lalitpur, Nepal

ABSTRACT

Introduction: Studies in mortality are important since they help to describe the quality of service in the particular department This study is aimed to know the various causes of mortality in emergency department and other associated factors.

Method: It is a retrospective study data will be collected from the charts of mortality patients in emergency department in the year 2067 BS. The relation of death in emergency department (ED) with time, duration of stay, age, sex and their primary diagnosis was observed. We will also determined. The cause of death and the underlying disease in these patients were also analyzed.

Result: Among those who died, their most common chief complain on initial presenting complain had been shortness of breath (28.3%), followed by unresponsiveness (16.7%), altered sensorium (13.3%), poisoning (13.3%) and others. The leading underlying disease were Chronic obstructive pulmonary disease (COPD) (11.7%), head injury (11.7%), pneumonia (11.7%), aluminium phosphide poisoning (10%) and acute coronary syndrome (ACS) (8.3%). There were various causes of death found among which commonest one being respiratory failure(30%),followed by raised ICP (11.7%) septic shock (11.7%), heart failure (8.3%), hypovolemic shock (8.3%).. Most of the patient died within 6 hours of hospital entry (n=43). 10 patients died within 6 to 12 hours and 7 patients died after 12 hours.

Conclusion: This study concludes that the most common cause of death in ED were COPD, aluminum poisoning, head injury, pneumonia and ACS.

Keyword: cause of death, emergency, mortality

CORRESPONDENCE

Dr. Sumana Bajrachraya
Lecturer, Department of General Practice and Emergency Medicine
Patan Academy of Health Sciences
Email: sumeevaidya@live.com

Introduction

Mortality is a measure of number of deaths in population, scaled to size of that population per unit time. Emergency department is one of the busiest departments in hospital. Despite of the best treatment we may give to the patient, still some are unable to survive.

This study is aimed to know the various causes of mortality in emergency department and other associated factors. Studies in mortality are important since they help to describe the quality of service in the particular department. The type of deaths time duration of stay, underlying diseases in relation to death reflects the type service we give.

It also determines which patients are likely to die in ED and what is the commonest cause of death. WHO states that among the top ten causes of death the five leading causes of death in world to be IHD (12.8%), CVA (10.8%), LRTI (6.1%), COPD (5.8%), diarrhoeal diseases (4.3%).[1]

Hospitals can see if improvements in the quality care are needed. Mortality data provides measure for assessing community health status. Its data are some of the best sources of information that provide a snapshot of current health problem, suggest persistent patterns of risk in specific death over time. Hospital death rate is important indicators that can be influence by quality care which are very important for the patients.

Advantages of monitoring death rates include the fact that death is a definite unique event and it must be registered by law.[2] Hospital standard mortality ratios (HSMR) are adjusted hospitals death rate that taken account of variation in patients treated at each hospital.[2] Most of the studies have used HSMR as a tool for hospitals to analyze their death rates by comparing their risk adjusted mortality with national average. It helps to see the improvement in quality care of hospitals.[3] Routinely collected hospital episodes statistics data can be used to calculate HSMR and adjusted death rate for various diagnosis and procedures. Providing this information can prove a stimulus to introduction of range of improvement in hospital care mainly with the aim of reducing avoidable deaths.[1]

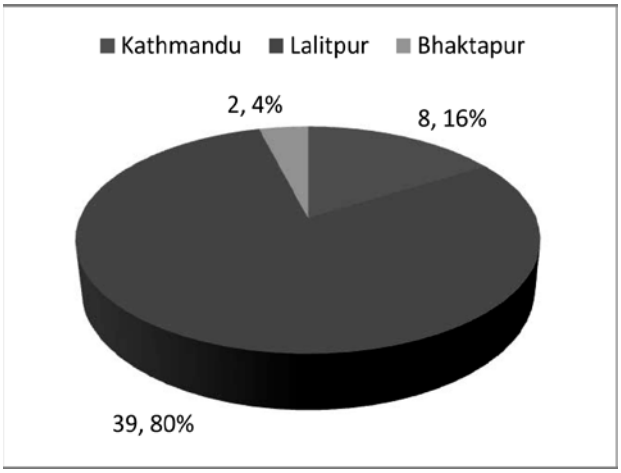
Method

Our study will be setup in emergency department. It is a retrospective study data will be collected from the charts of mortality patients in emergency department in the year 2067 BS. The relation of death in ED with time, duration of stay, age, sex and their primary diagnosis was observed. We will also determined. The cause of death and the underlying disease in these patients were also analysed.

Result

Total number of mortality in emergency department in one year was 60. Among them maximum age group was 86 years old and minimum was 1year old. Female were 21.7 % and male were 78.3%.

Figure 1. Address of the patient



Highest number of patients was from Lalitpur district (65%). Maximum number of mortality was of age group 40-60 years (35%).

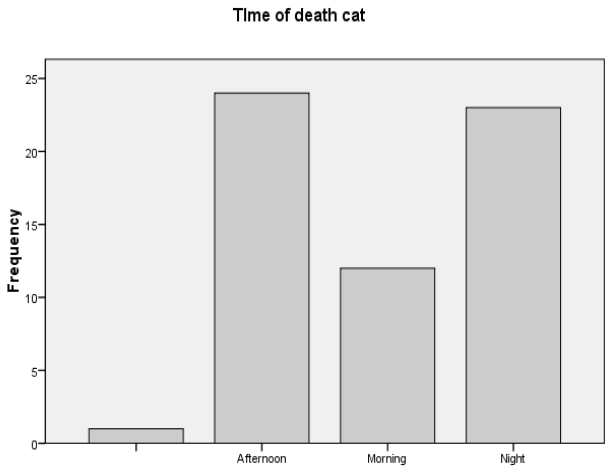
Among those who died, their most common chief complain on initial presenting complain had been shortness of breath (28.3%), followed by unresponsiveness (16.7%), altered sensorium (13.3%), poisoning (13.3%) and others.

There were various underlying diseases found in those patients who died in emergency department. Out of which the leading underlying disease were COPD (11.7%), head injury (11.7%), pneumonia (11.7%), aluminium phosphide poisoning (10%) and acute coronary syndrome (8.3%)

There were various causes of death found among which commonest one being respiratory failure(30%),followed by raised ICP (11.7%) septic shock (11.7%), heart failure (8.3%), hypovolemic shock (8.3%).

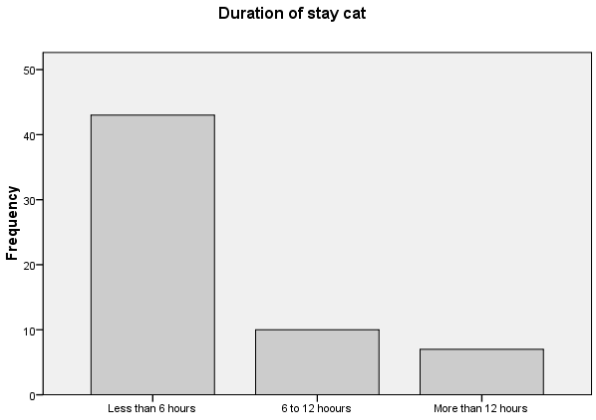
In female most common presenting complain was unresponsiveness 38.5% where as in males it was shortness of breath (29.8%). COPD was common in 60 to 80 yrs age group (26.7%). Aluminium phosphide poisoning was common in 40 to 60 yrs age group (19%). Head injury was common in younger age group of 20 to 40 yrs (29.4%). ACS was common in 60 to 80 yrs (20%). Those who died due to pneumonia most of them were below 20yrs (50%).

Figure 2. Time of Death



Most of the deaths occurred at afternoon time (23%) and very few in the evening.

Figure 3. Duration of stay



Most of the patient died within 6 hours of hospital entry (n=43). 10 patients died within 6 to 12 hours and 7 patients died after 12 hours. Among those who died within 6 hours; most of them were aluminium phosphide poisoning (14%). Most of the COPD patient died within 6 to 12 hours (30%). Most of the head injury and pneumonia patients and died after 12 hours (14% & 28.6%).

It was found that most of the aluminium phosphide poisoning arrived at night time (22%) and head injury patient in the afternoon (25%) and COPD in the afternoon (25%).

Discussion

The present was done on the basis of ER mortality register in which 60 mortality cases were taken. This study showed the most common cause of death in emergency department were COPD, poisoning, pneumonia, head injury and ACS which was slightly different from the WHO data which stated the most common causes of death in the world to be IHD, CVA, LRTI, COPD and diarrheal diseases.[1] Among those who died most of them were from Lalitpur area, it could be because of easy assecebility of the hospital. The factors that affected death were found to be older age sex, presenting complains, and underlying diagnosis. B Jarman et al[2] have found in their study that factors influencing death are primary diagnosis, age, sex, urgency of admission, length of stay, co-morbidity, and social deprivation, source of referral and month of admission.

The causes of death were all determined clinically according patients' history, examinations and laboratory investigations. We did not have any subject who underwent autopsy. Previous study done by Vanbrabant P et al[4] studied to determine the knowledge in terms of cause of death and quality of death certification about patients who die in the emergency department and to establish the role of autopsy in this matter. One hundred and ninety-six patients died in the ED in 1998. In 141/196 patients the cause of death could be determined on clinical grounds. In 53/196 patients, the antemortem clinical diagnosis was unknown. Twenty-nine out of 53 patients underwent autopsy. In all but one patient autopsy revealed the cause of death. After retrospective analysis of all patient data (notes, biology, radiology and pathological investigation), the major causes of death were cardiac (19.4%), cerebral (non-traumatic) (16.8%), trauma (15.3%) and unknown (13.3%). In the patient group with sudden cardiac arrest of unclear origin, the postmortem cause of death was identified

as cardiac (51.7%), non-traumatic bleeding (10.3%), infectious (10.3%) and pulmonary embolism (3.4%).The concordance between the antemortem presumed cause of death recorded in the patient notes and the real cause (all patient data) is poor.

Most of the causes were obvious like copd, CVA, septic shock. But in our present study it was found that head injury also was a major cause of mortality. And their duration of stay was more than 12hrs.this is not a usual scenario since most of these patients get referred to neurosurgery. Those head injury patients who died in emergency department; most of them were unidentified patients brought by police. Some of the preventable causes of death like hypovolemic shock, pneumonia, should be evaluated carefully. The present study has not looked at the prior resuscitation of the patients, which is also an important factor for determining death. Some other studies like J E Roller et al[1] studied on the incidence and cause of unexpected deaths in ED patients in relation to initial presentation. They determine if the length of ED stay is directly related to unexpected deaths. Patients receiving CPR on admission were expected to die. Among the unexpected deaths 74% of them had altered level of consciousness and the average time of death after initial presentation was 91 min. They concluded that unexpected death were common in ED, usually nontraumatic and occurred with evidence of significant illness.

Study done by M. Baker[2] showed that those who died in emergency department were mostly the ones with prior cardiac arrest and resuscitated or those who had terminal illness. So they were among the category of expected deaths (85%). And other 15% were unexpected deaths which were sudden. The record of unexpected deaths was used to measure the quality care. In our study we have not looked at the prior cardiac arrest or resuscitation, but that would be a useful tool to look at in future.

B Jarman[2] has used the hospital standardized mortality ratio as a tool for Dutch hospitals to analyze their death rates by comparing their risk adjusted mortality with the national average. HSMR compares the actual number of hospital deaths with the expected number for those patients with a primary diagnosis within the set of diagnostic groups that account for 80% of all deaths in the hospital nationality. We could also use such rates for quality service. Those sick patients who are expected to die need not undergo a vigorous management since it may not be beneficial for them. Those who died unexpectedly should be properly registered that their files should be reviewed in detail to prevent further mishaps in future.

In the present study most of the patients died within 6 hrs of hospital entry, and those who died early most of them were aluminum phosphide poisoning, which were expected to die. Those who died after 12 hours most were coped and head injury. COPDs were of older age groups more than 80yrs. And most of the patient who died from pneumonia were below the age of 20. This shows that referral to ICUs for those in younger groups should be encouraged more. Study done by N Shapiro had concluded that identification of acute organ damage in ED patients with suspected infection may help select patients with increased short and long term mortality risk. SIRs criteria offered some prognostic value whereas each additional organ dysfunction increased the one yr mortality risk.

Most common presenting complains was found to be shortness of breath, unresponsiveness and altered mental status. Similar findings were seen in study done by Shapiro NI et al[3]which found out that the independent multivariate predictors of death were terminal illness, tachypnoea or hypoxia, septic shock, low platelet count, lower respiratory infection and altered mental status.

Conclusion

This study concludes that the most common cause of death in ED were COPD, aluminum poisoning, head injury, pneumonia and ACS. Most of them were of above 80 yrs and more of them were males. The commonest presenting symptoms were shortness of breath and unresponsiveness. Most of them died within 6hrs of ED stay.

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