Original Article

Top ten causes of death of patients admitted in a Medical College Hospital in Dhaka, Year 2014

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Abstract

The aim of this study was to determine mortality rates and identify associated causes and to notify top ten causes at a tertiary hospital situated in the Dhaka, Bangladesh. Death certificates from Dhaka National Medical College Hospital were retrieved and reviewed for the period 1st January to 31st December 2014 in this cross sectional study. Data were collected using a data collection form designed for the study. The average death rate was 6.8 deaths per 1000 patients based on the number of patients admitted during the study period. The age of the deceased ranged from 15-85 years, with a mean of 49.1 ± 18.6 years. Total number of death 74 out of which 30 (40.5%) are male, and 44 (59.5%) are female. Hypertension with its complication, C.V.D and diabetes mellitus, Chronic Kidney Disease(CKD), Chronic Obstructive Pulmonary Disease(COPD), Hepatic Encephalopathy, Acute Gastro Enteritis (AGE), Cancer (Bronchogenic carcinoma) and infection were the top 10 most common causes of death and were responsible for 91.8% of all recorded deaths. Overall the triple burden infectious diseases, non-communicable diseases (NCDs) and cancer remain the leading causes of death in patients at the study site. Interventions to control the spread of infectious diseases, cancer screening services and culturally appropriate lifestyle programs are urgently needed to address NCDs.

Introduction

Death affects all age groups worldwide. But deaths occurring in adults are of significance because of their important role in earning money and looking after both children and the elderly[1]. In Bangladesh, an increase in adult mortality rate, was reported in a community-based study in the rural areas[2]. The explanation for such an increase is multifactorial, and includes the growing burden of chronic and lifestyle-related diseases. Current projections by the World Health Organization indicate that by 2020, infectious diseases will be the leading cause of death in developing countries, while non-communicable diseases (NCDs), including heart and cerebrovascular disease, will predominate in middle and high-income countries[3]. In Bangladesh several studies have reported on causes of death at District levels[4]. However, little information is available on specific causes of death at institutional level. It important for local healthcare teams to know which health conditions are responsible for the largest burden of death, so that

they can plan interventions to address them. The aim of this study was to determine death rates in patients aged 15 years and older, and to identify causes of death at a tertiary hospital.

Method

This was a retrospective descriptive study, based on the review of medical records at Dhaka National Medical Institute Hospital. It is a teaching hospital under University of Dhaka, that mainly serves middle and lower class communities, with a maximum capacity of 600 beds. The data for this study were collected for a period of 12 months from 1st January 2014 to 31st December 2014. Data were collected using a data collection form designed for the study. This study included the deaths of people aged 15 years and older upto 85 years who had been treated at the facility. The hospital deaths register was used as the starting point in the collection of a list of deaths that occurred during the study period. The relevant death certificate were retrieved and

reviewed. The following data were collected: date of death, gender and age of the deceased and the cause of death. The recorded causes of death were classified according to the International Classification of Disease version 10[5]. The statistical software, Stata version 9, was used for data analysis, Comparison was performed using the chi-square test for categorical variables.

Results

Rate of death

Seventy Four adult deaths were recorded during the period, Based on the number of patients admitted during the period, the average death rate was 6.8 deaths per 1000 patients, and ranged from 6.2-7.3 deaths per 1,000 patients. The death rate in females was considerably higher than that in males (7.9 vs. 5.8 deaths per 1,000, p-value 0.86), but the difference was not statistically significant (Table I).

Table-1: Top ten cause of death (n=74)

Sl. No.	Causes of Death	Frequency	Percentage
1	Hypertension with its complications	16	21.0
2	Cerebrovascular disease (CVD)	1	16.2
3	Diabetes mellitus with its complications	7	9.4
4	Chronic kidney disease (CKD)	8	10.8
5	Chronic obstructive pulmonary disease (COPD)	6	8.1
6	Electrolytes Imbalance	6	8.1
7	Septicaemia	4	5.4
8	Hepatic Enchapalopathy	4	5.4
9	Acute Gastroenteritis (AGE)	6	8.1
10	Bronchogenic carcinoma	5	6.7

Age with respect to the proportion of deaths

Figure-1: Age distribution of the patient in death cases (n=74)
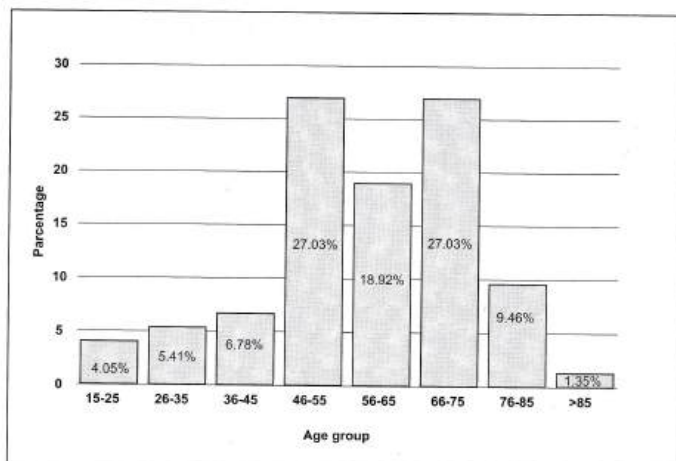
The absolute number of deaths was that 74, among which 20(27%) were in the age groups of 46-55 years. This is a working age group, 27% mortality in this age is alarming to Nations. Cardiac emergency, Road Traffic Accident(RTA), poisoning were not including in my study. (Figure-1)

Categories of causes of deaths

In this study all natural causes of death were identified because our study hospital did not admit Unnatural diseases. Cardiovascular diseases, Infections, Cancer, digestive and respiratory systems were the leading causes of natural death.
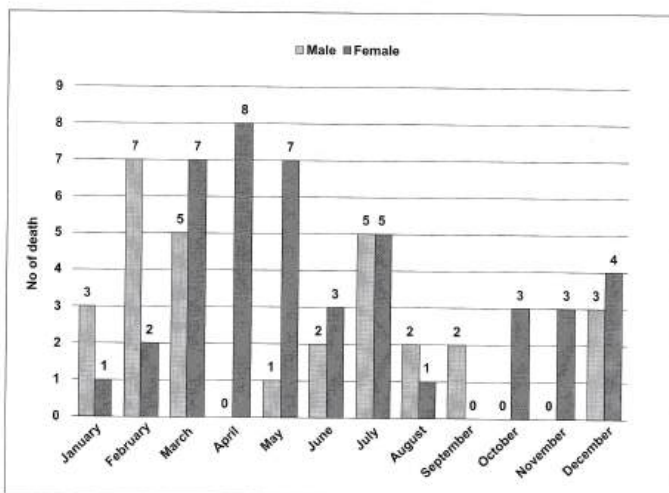
Sex respect to causes of death

Table-2: Sex distribution of patients in death cases (n=74)

Sex	Frequency	Percentage
Male	30	40.5
Female	44	59.5
Total	**74**	**100.00**

Total number of death is 74, where 30 (40.5%) are male, and 44 (59.5%) are female. (Table-2)

Seasonal Variation of Death

Figure-2: Month wise distribution of death

About (12%) died in the month of March followed by July (10%), April and May 8%. As disease turn over is more in March also mortality is high in March.

Discussion

This study has presented the rates and causes of adult deaths in a Medical College Hospital in Dhaka city. The average death rate is 6.8 per 1000 patients, calculated from the data in this institution which is lower than the national crude death rate that has been estimated to range

from 11.7-12.4 per 1000 people[6]. The findings of this study confirm the trend that the male death rate is lower than that of females while the findings of this study differ with the established fact. The proportion of deaths was highest in people aged 46-55 years. It also demonstrates that females in this age group died more than males[7]. In our study male deaths were 40.5% which is apparently consistent with the national figure of 51.4% for male deaths. The above trends have also been reported by other investigators . The finding that the average age of death of patients at the study site was 49 ± 18.6 years which is the most economically and socially active period of their lives, which is similar with the observation made by Abdool Karim, Churchyard, Karim and Lawn in South Africa[8]. These trends call for more efforts to address causes of death in order to mitigate the associated negative implications.

The findings of this study show that the identified top ten most common causes of death namely cardiovascular disease together with its complications, cancer, septicemia, diabetes, were together responsible for over 50% of all deaths. Their distribution, based on age and sex, clearly suggests that an epidemiological transition is taking place. The increased proportion of deaths from Non Communicable Diseases (NCD) e.g. cardiovascular disease, diabetes and cancer (that caused over a quarter of deaths, particularly in adults and the elderly), is worrying[9].

The first Bangladesh National Burden of Disease study reported that cervical and breast cancer in women, and lung cancer in men, were the main causes of cancer deaths in adults aged 45 years and older[10]. In our study lung and prostate cancer in adults and elderly men were the predominant causes of cancer deaths in Bangladesh.

Death resulting from cardiovascular disease is known to be a problem worldwide. that hypertension, strokes and ischaemic heart disease were causing many adult deaths in Bangladesh[9].

As a cross-sectional study this was limited by the short period in which the data were collected. The study was conducted in a tertiary referral hospital where death rates may not have reflected the situation throughout the whole country. Additionally, the recorded causes of death were based on a clinical assessment of the attending medical doctors and in the absence of post-mortem autopsy records the accuracy of the causes of death could not be verified.

Conclusion
The triple burden of NCDs, infectious diseases and malignancy remains the leading cause of death in our study. Culturally appropriate lifestyle programs are needed to be adopted to modify NCDs and interventions to control the spread of infectious diseases and programs for cancer screening are urgently required.

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