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Study of Mortality Pattern in Adults at a Tertiary Care Teaching Hospital in South India.

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ABSTRACT

India is undergoing rapid epidemiological transition as a consequence of economic and social change. The pattern of mortality is a key indicator of the consequent health effects but up-to-date, precise, and reliable statistics are few, particularly in rural areas. The pattern of diseases in developing countries is very different than those in developed ones. In a typical developing country, most deaths result from infectious and parasitic diseases, abetted by malnutrition. In India, about 40% of deaths are from infectious, parasitic and respiratory diseases as compared with 8% in developed countries. The Main aim of present study is to study the mortality pattern with sociodemographic characteristics of non medico legal deaths which occurred in Basaveshwara medical college & Hospital, Chitradurga. A retrospective study was done with Death records from medical record section of patients in Basaveshwara medical college and Hospital, A tertiary care hospital Chitradurga. All case records of indoor patients after discharge or death, except deaths of medico legal cases, are submitted in the Medical Record Section that works under Community Medicine Department, BMCH, Chitradurga. All deaths that occurred during the 5-year period, i.e., 2009-2013, except medico legal, Pediatric and OBG deaths were considered for Study. The mortality rate of 17.21, 18.79, 17.66, 19.18, and 15.50 per 1000 admissions from 2009 to 2013 respectively. Most deaths are seen in males than females. Mortality from people of rural is higher than urban. Major proportion of deaths were in >60years. Knowledge of mortality pattern which may vary from region to region is crucial in formulating health care programs and policies.

INTRODUCTION

Patterns of mortality decline that occur with the demographic transition is a change in the distribution of deaths by cause away from a pattern dominated by communicable diseases toward one in which non-communicable diseases account for the overwhelming majority of deaths. This process, known as the epidemiologic transition.^[1] Life expectancy in India shows a continuous increasing trend from 23.63 years for male and 23.96 years for females in 1901 it has gone up to 63.9 years for males and 66.9 years for females in 2001.^[2]

India is undergoing rapid epidemiological transition as a consequence of economic and social change. The pattern of mortality is a key indicator of the consequent health effects but up-to-date, precise, and reliable statistics are few, particularly in rural areas.^[3]

Mortality statistics reveal much about the health of the population: Once derived statistics and life expectation at birth and at various subsequent ages is often cited as an indicator of population health when comparisons are made over time and between nations for designing intervention programs, allocation of resources and indicating priorities. It is essential to know the frequency of disease or death, but this is not static, and keeps changing. It is also important to decide whether the observed change reflects change in incidence, in case fatality or both. It is equally important to determine whether the observed trend in mortality is genuine or is it due to change in nomenclature or classification of disease, changes in accuracy of diagnosis or changes in the statistical classification or allocation of priorities. [4]

The pattern of diseases in developing countries is very different than those in developed ones. In a typical developing country, most deaths result from infectious and parasitic diseases, abetted by malnutrition. In India, about 40% of deaths are from infectious, parasitic and respiratory diseases as compared with 8% in developed countries. [5]

The age, gender and cause-specific mortality rates by residence are essential indicators which help in monitoring health trends in the population. [6]

Mortality data from hospitalized patients gives the causes of major illnesses and care-seeking behavior of the community as well as the standard of care being provided. Records of vital events like death, provide an important component of the Health Information System. Hospital-based death records provide information regarding the causes of deaths, case fatality rates and age and sex distribution, which are of great importance in planning health care services. [4]

The Main aim of present study is to study the mortality pattern with sociodemographic characteristics of non medico legal deaths which occurred in Basweshwara medical college & Hospital, Chitradurga.

METHODOLOGY

A retrospective study was done with Death records from medical record section of patients in Basweshwara medical college & Hospital, A tertiary care hospital Chitradurga.

All case records of indoor patients after discharge or death, except deaths of medico legal cases, are submitted in the Medical Record Section that works under Community Medicine Department, BMCH, Chitradurga. All deaths that occurred during the 5-year period, i.e., 2009-2013, except medico legal, Paediatric and OBG deaths were considered for Study. The underlying cause of death was classified according to I.C.D. 10th revision. Name, age, gender, date of admission, place of residence, date of death and underlying cause of death were used for study. Data was summarized by using SPSS 19th version. Approval of institutional ethical committee was obtained prior to the study.

RESULTS

A total of 833 deaths were registered in 5years from 2009-2013 in Medical Records Sections of Basaveshwara Medical College and hospital, Chitradurga. The Study includes 493 out of 833 deaths which excludes medico legal deaths, OBG and Paediatric. Mortality rate was calculated per 1000 inpatient admissions. The mortality rate of 17.21, 18.79, 17.66, 19.18, and 15.50 per 1000 admissions from 2009 to 2013 respectively. Most deaths are seen in males than females. Mortality from people of rural is higher than urban. Major proportion of deaths were in >60years (Table 1).

The Cause of Death of Patients was classified according System wise classification shown in Table 3, the major portion of deaths were occurred due Cardio Vascular disorders(IHD, HTN, Heart Failure & Arrhythmias) and next leading cause was Respiratory Diseases than followed by Infectious Diseases (HIV,TB, Dengue, etc.) (Figure 1). The Cause of death is more in Non-Communicable diseases compared to that of Communicable diseases (Table 2).

Table 1: Sociodemographic Distribution of Patients admitted in BMCH, Chitradurga

Variable	Year					Total
	2009	2010	2011	2012	2013	
Mortality rate per 1000 admissions						
IPD	8595	8194	9682	9694	11223	47388
No. of deaths	148	154	171	186	174	833
Mortality rate	17.21	18.79	17.66	19.18	15.50	17.5
Gender						
Male	55	53	62	70	59	299
Female	38	41	44	36	35	194
Total	93	94	106	106	94	493
Residence						
Rural	55	63	71	82	62	333
Urban	38	31	35	24	32	159
Total	93	94	106	106	94	493
Age Classification						
16-45yrs	17	29	29	29	24	128
46-60yrs	30	30	25	29	30	144
>60yrs	46	35	52	48	40	221
Total	93	94	106	106	94	493

Mean duration hospital stay of admitted Patients yearly was 3.72, 3.20, 3.27, 3.22 and 3.86 days from 2009 to 2013 respectively (Figure 2) .

Table 2: Mortality Pattern according to Communicable and Non-Communicable Diseases

Cause of death	Year					Total	%
	2009	2010	2011	2012	2013		
Communicable Diseases	34	44	36	42	38	194	39.35
Non-Communicable Diseases	59	50	70	64	56	299	60.65
Total	93	94	106	106	94	493	100

Table 3: Cause of Death of Patients according System wise classification

Cause of death	Year					Total	%
	2009	2010	2011	2012	2013		
Respiratory Diseases	19	15	18	19	23	95	19.62
Cardiovascular Diseases (CVD)	26	25	27	33	25	136	27.5
Malignancy	5	1	4	1	10	21	4.25
Renal System	4	7	8	9	3	31	6.28
Gastro Intestinal System	7	5	7	5	7	31	6.28
Infectious Disease	12	16	15	18	12	73	14.80
Neurological Disorders	7	6	11	7	5	36	7.30
Metabolic Disorders	7	6	7	7	4	28	5.67
Neuroinfection	6	11	7	5	3	33	6.69
Others*	4	2	3	3	3	15	3.04
Total	93	94	106	106	94	493	100

*Others include Anemia, Hypovolemic Shock etc.

Table 4: Cause of Death of Patients admitted in BMCH, Chitradurga

Cause of death	Year					Total	%
	2009	2010	2011	2012	2013		
Asthma	2	1	4	2	1	10	2.02
Cancer	5	1	4	1	10	21	4.25
CCF	7	8	11	14	9	49	9.93
COPD	4	2	4	3	4	17	3.44
Convulsions	1	1	1	1	1	5	1.01
Diabetes & it's Complications	4	6	7	7	4	28	5.67
Dengue	0	2	3	4	1	10	2.02
HIV	2	2	1	1	1	7	1.41
IHD	16	14	15	17	13	75	15.21
Liver & it's Disorders	7	5	7	5	7	31	6.28
Malignant HTN	3	3	1	2	3	12	2.43
Meningitis	1	4	4	2	2	13	2.63
Peritonitis	2	1	2	1	1	7	1.41
Pneumonia	13	13	10	14	18	68	13.79
Renal Failure	4	7	8	9	3	31	6.28
Septicemia	5	7	5	7	4	28	5.67
Stroke	6	5	10	6	4	31	6.28
TB	3	4	4	5	5	21	4.25
Others*	8	8	5	5	3	29	5.88
Total	93	94	106	106	94	493	100

*Others include viral encephalitis, Metabolic Encephalopathy, Hypovolemic shock, Anemia, Etc.

Figure 1: Cause of Death of Patients according System wise classification

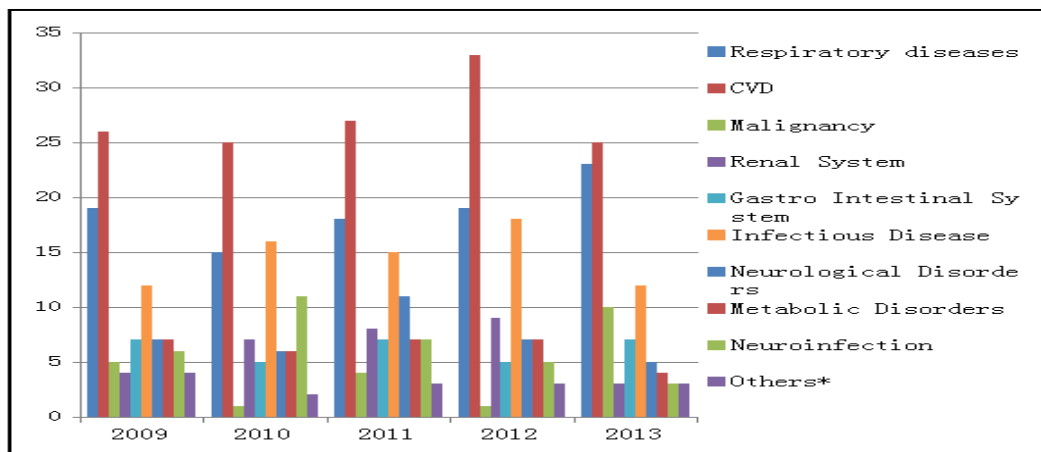
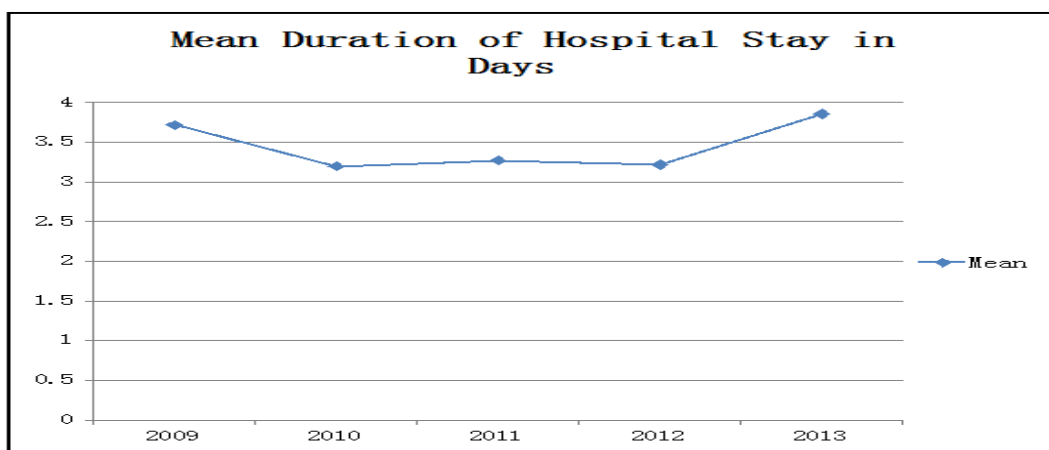


Figure 2: Mean Duration Hospital Stay of Patients



DISCUSSION

The present study has shown that the significant cause of death involved Cardio Vascular Disease with uneven mortality rate. Holambe V.M *et al* reported linearity in mortality rate. [7] A similar finding was reported by Joshi *et al*. [8]

Male deaths were more than female deaths which has been documented in various studies. [7-11] whereas rural deaths were more than urban deaths. This may be due to poverty which is more prevalent in rural areas or patients were referred from Primary Health Centers to the hospital in terminal stage of their illness, whereas the urban population has more access to private hospitals/clinics. The Cause of death is more in Non-Communicable diseases compared to that of Communicable diseases, there is an upward trend of non-communicable diseases as leading cause of death due to many reasons such as change in lifestyle and behaviour. [5] We found CVD deaths to be 27.5%, which was higher percentage than all other diseases, Similar findings were seen in Peres LC *et al*. [13]

In the present study a major proportion of hospital deaths were in patients >60 years followed by 46-60 years and 16-45 years. Holambe V.M *et al* also reported the same. [7]

CONCLUSIONS

Knowledge of mortality pattern which may vary from region to region is crucial in formulating health care programs and policies.

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