Original Research Article

Mortality statistics in a tertiary care teaching hospital in Bagalkot, Karnataka in the year 2022

Gowri Shankar[1]*, Bhagyalaxmi Sidenur[2], Eshwar B. Kalburgi[3]

[1]Department of Community Medicine, S. N. Medical College, Navanagar, Bagalkot, Karnataka, India
[2]Department of Community Medicine, Sri Basaveshwara Medical College, Chitradurga, Karnataka, India
[3]Department of Surgery, Hangal Sri Kumareshwar Hospital and Research Centre, Navanagar, Bagalkot, Karnataka, India

*Correspondence:
Dr. Gowri Shankar,
E-mail: drgowrijnmc@gmail.com

ABSTRACT

Background: Mortality statistics is important for epidemiological purposes to find any unusual rise in deaths for investigation of the causes so as to take public health action at an early stage. Cause of death statistics from hospitals are routinely amalgamated along with mortality statistics from other sources to constitute essential statistics on the health of a population. This study was done to understand the mortality pattern in a tertiary care teaching hospital and to undertake preventive action as much as possible.
Methods: A retrospective hospital based study was done with all the medical records of patients who died in Hangal Sri Kumareshwar hospital and medical research centre in the year 2022, attached to S. N. Medical College, Bagalkot, Karnataka. After IRB, the medical records were analyzed to study the pattern of disease causing deaths which were classified under ICD 10th revision. Age, sex, month of admission, place of residence and underlying cause of death was used for analysis using chi square test and percentages.
Results: Out of 501 deaths, 316 (63.07%) were male and 185 (36.93%) were female. Majority of the deaths 152 (30.34%) occurred between the ages of 41 to 60 years. Non communicable diseases contributed to 71.05% of deaths and communicable diseases to 28.95% of deaths.
Conclusions: Continuation of the maternal and child health program and effective implementation of the National health programs to overcome non communicable diseases can reduce avoidable premature mortality in the population.

Keywords: Mortality, Tertiary care hospital, Communicable diseases, Non communicable diseases

INTRODUCTION

Mortality statistics is important for epidemiological purposes to find any unusual rise in deaths for investigation of the causes so as to take public health action at an early stage. Mortality statistics is useful for early detection and control of outbreaks, identifying diseases of public health importance for allocating resources, evaluating effectiveness of National health programs and to analyze socio economic, demographic and environmental factors related to deaths.[1]

Cause of death statistics from hospitals are routinely amalgamated along with mortality statistics from other sources to constitute essential statistics on the health of a population.[2] It will also help to monitor the progress of sustainable development goals for achieving health and wellbeing of the population by 2030.[1]

India is undergoing rapid epidemiological transition due to economic and social change. The pattern of mortality is a key indicator of the consequent health effects. The medical record department in a tertiary care teaching hospital has a system of compilation and retention of records but the acquisition of meaningful statistics from these records for health care planning and review is lacking. Mortality data from hospitalized patients reflect the causes of major illness.[3]

Premature adult mortality by age 60 accounted for one-third of total deaths in low and middle income countries. Non communicable diseases are the leading cause of death and primarily affect those of working age, and adversely affect economic growth and development. In 2004, the estimated loss to Gross domestic product in India due to cardiovascular disease alone was about 1 trillion rupees.[4] This information provides a background for patient care and highlights the importance in managing day to day hospital duties.[5]

Hence this present study was undertaken to study the mortality pattern in a tertiary care teaching hospital in North Karnataka.

METHODS

A retrospective hospital based study was done with the medical records of all patients including medico legal cases who died in Hangal Sri Kumareshwar hospital and medical research centre from 1st January to 31st December in the year 2022. This is a tertiary care teaching hospital attached to S. N. Medical College, Bagalkot, Karnataka.

After Institutional ethical clearance, the medical records were analyzed to study the pattern of disease causing death which was classified under The International classification of Diseases (ICD) 10th revision. It is designed to promote international comparability in the collection, processing, classification and presentation of mortality statistics.

This includes providing a format for reporting causes of death on the death certificate. The reported conditions are then translated into medical codes through use of the classification structure and the selection and modification rules contained in the applicable revision of the ICD, published by the World Health Organization.

These coding rules improve the usefulness of mortality statistics by giving preference to certain categories, by consolidating conditions, and by systematically selecting a single cause of death from a reported sequence of conditions.[6]

Age, sex, month of admission, place of residence and underlying cause of death was used for analysis using epi info software and chi square test and percentages were calculated and a p value of less than 0.05 was considered as significant in all the tests.

RESULTS

Out of 501 deaths in Hangal Sri Kumareshwar hospital and medical research center , Bagalkot, Karnataka, India in 2022, 316 (63.07%) were male and 185 (36.93%) were female. Maximum deaths (71.86%) were from Bagalkot district and Bagalkot taluk (34.44%).

Table 1: Distribution according to month of admission.

Month	Male	%	Female	%	Total	%
January	27	8.54	19	10.27	46	9.18
February	19	6.01	17	9.19	36	7.18
March	12	3.80	16	8.65	28	5.59
April	18	5.70	14	7.57	32	6.39
May	29	9.18	09	4.86	38	7.58
June	23	7.28	14	7.57	37	7.39
July	45	14.24	13	7.03	58	11.58
August	31	9.81	15	8.11	46	9.18
September	39	12.34	21	11.35	60	11.98
October	27	8.54	11	5.95	38	7.58
November	25	7.91	18	9.73	43	8.58
December	21	6.65	18	9.73	39	7.78
Total	316	100	185	100	501	100

DF=11, x^2 = 19.06, p value= 0.05

Table 2: Distribution according to department of admission to hospital.

Department	Total	%
Medicine	280	56.00
Cardiology	051	10.20
Surgery	034	6.80
Nephrology	019	3.80
Plastic surgery	001	0.2
Gastroenterology	001`	0.2
Neurology	022	4.40
Neurosurgery	012	2.40
Obg	007	1.40
Picu	024	4.80
Nicu	035	7.00
Oncology	001	0.2
Orthopedics	004	0.80
Respiratory medicine	002	0.4
Dermatology	002	0.4
Urology	001	0.2
Ophthalmology	001	0.2
Emergency medicine	001	0.2
Endocrinology	002	0.4
Total	501	100

It was observed that 364 (72.65%) were from rural areas and 137 (27.35%) were from urban areas. Majority of the deaths 60 (11.98%) occurred in the month of September followed by 58 (11.58%) in the month of July (Table 1).

Maximum deaths (56.00%) occurred in the general medicine ward followed by 10.20% deaths in cardiology ward and 7.00% in NICU ward (Table 2). It was observed that majority of the deaths 152 (30.34%) occurred between the ages of 41 to 60 years followed by 142 (28.34%) between 61 to 80 years of age and 115 (22.95%) deaths between 20 to 40 years of age (Table 3).

Table 3: Distribution of mortality according to age and sex.

Age	Male	%	Female	%	Total	%
Early neonate < 7 days	18	5.7	11	5.95	29	5.79
Late neonate 8-28 days	04	1.27	0	0	04	0.80
29 days to 1 year	02	0.63	03	1.62	05	1.0
1 to 5 years	04	1.27	04	2.16	08	1.6
6 to 10years	02	0.63	04	2.16	06	1.20
11 to 19 years	08	2.53	08	4.32	16	3.19
20 to 40 years	73	23.10	42	22.7	115	22.95
41 to 60 years	101	31.96	51	27.57	152	30.34
61 to 80 years	89	28.16	53	28.65	142	28.34
> 81 years	15	4.75	09	4.86	24	4.79
Total	316	100	185	100	501	100

DF = 9, x^2 = 8.3, p = 0.5

Table 4: Distribution of male and female deaths according to type of communicable and non-communicable disease.

Communicable disease	Male	%	Female	%	Total	%
Infectious and parasitic disease	27	8.54	25	13.51	52	10.38
Inflammatory disorders of CNS	13	4.11	14	7.57	27	5.39
Infections specific to Perinatal period	11	3.48	03	1.62	14	2.80
Respiratory infections	21	6.64	10	5.41	31	6.19
Infections of skin and subcutaneous tissue	16	5.06	05	2.70	21	4.19
Total	88	27.85	57	3.81	145	28.95
Non communicable disease						
RTA	20	6.33	05	2.70	25	4.99
Genitourinary	13	4.11	07	3.78	20	3.99
Pregnancy, childbirth, puerperium	-	-	09	4.86	09	1.79
Perinatal conditions	10	3.16	10	5.41	20	3.99
Digestive system	07	2.21	01	0.54	08	1.60
Respiratory System	15	4.75	03	1.62	18	3.60
Chronic liver disease	48	15.19	01	0.54	49	9.78
Cardiovascular disease	69	21.83	59	31.89	128	25.55
Diabetes mellitus	25	7.91	14	7.57	39	7.78
Tumors	09	2.85	07	3.78	16	3.19
Congenital malformation	02	0.63	02	1.08	04	0.80
Burns	02	0.63	02	1.08	04	0.79
OP Poisoning	07	2.21	06	3.24	13	2.60
Scorpion bite	01	0.32	0	-	01	0.20
Hanging	0	-	01	0.54	01	0.20
Snake bite	0	-	01	0.54	01	0.20
Total	228	72.15	128	69.19	356	71.05

CD DF = 4, x^2 = 8.09, p = 0.08, NCD DF=15, x^2=61.3, p = 1.4

Non communicable diseases contributed to 71.05% of deaths and communicable diseases to 28.95% of deaths (Table 4).

Cardiovascular disease was the leading cause of death (25.55%) followed by Infectious and parasitic disease (10.38%).

Alcoholic liver disease contributed to 47 (14.87%) of the total male deaths. Majority (31.91%) were between 31 to 40 years of age followed by 29.79% between 41 to 50 years of age and 23. 40 % between 51 to 60 years of age.

Pulmonary tuberculosis was the cause of death in 16 (3,19%) and maximum number (31.25%) were between

41 to 50 years of age followed by 25% between 71 to 80 years of age.

Retro viral disease was responsible for 1.40% of the deaths and 57.14% were between 41 to 50 years of age.

Carcinoma contributed to 3.19% of the deaths and carcinoma lung was seen in 25% and carcinoma esophagus in 18.75% of the cancer deaths.

Road traffic accidents were responsible for 4.99% of the total deaths and out of them, 56% of the deaths were between 20 to 30 years of age.

Regarding maternal deaths, post-partum hemorrhage and pregnancy induced hypertension contributed to 33% each of the deaths and were between 20 to 30 years of age.

DISCUSSION

Mortality statistics is useful for early detection and control of outbreaks, identifying diseases of public health importance for allocating resources, evaluating effectiveness of National Health Programs and to analyze socio economic, demographic and environmental factors related to the deaths

In the present study, preponderance of male deaths (63.07%) over female deaths, similar to the present study, was a finding of several studies.[5,7,8]

It was observed that almost three-fourths of the deaths were from Bagalkot district and one-third was from Bagalkot Taluk out of 9 taluks of the district. This indicates approachable and accessible tertiary care hospitals in the hour of need.

About three-fourths of the deaths were in residents from rural areas and indicate the need for well equipped first referral units in the remaining taluks of the district.

More than 50% of the deaths have occurred between 20 to 60 years of age. The rate of premature mortality is an important measure of health status and is a guide for health policies in many developed countries. Estimate of premature mortality and understanding the factors affecting the same are vital to reduce preventable deaths and improving population health.[4]

With this regard, non communicable diseases were responsible for 71.05% of total deaths. Communicable diseases were the leading cause of death in 2021 and almost 30% of the deaths were in Covid wards.[9] Regarding deaths due to alcoholic liver disease, 85.10% of males were between 31 to 60 years of age which is the most productive age group. Dependents of the deceased are the worst sufferers in such a situation. More stringent laws regarding alcohol consumption and permissible limit should be enforced at the earliest to prevent such untimely deaths. National health programs of Tuberculosis and National AIDS control organization are working on achieving sustainable development goals. More than half of the road traffic accident deaths were observed in those between 20 to 30 years of age. Valuable lives are lost due to various risk factors and more vigorous laws need to be brought about at the earliest to save the precious lives of the individual's family.

As this is a retrospective study, there are limitations like incomplete records, vagueness in recording and non uniformity in record keeping across all wards. This study cannot accurately represent regional health statistics as it uses hospital data. Also the diagnosis recorded in the patient's medical record was noted without verification.

CONCLUSION

Continuation of the maternal and child health program and effective implementation of the National health programs to overcome non communicable diseases can reduce avoidable premature mortality in the population. This study will help to review critical areas and the pattern of mortality in the hospital for the health administrators to implement effective changes to reduce premature mortality.

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