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A STUDY OF MORTALITY IN A TERTIARY CARE TEACHING HOSPITAL IN BAGALKOT, KARNATAKA

Community Medicine

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ABSTRACT

BACKGROUND: Wide disparities exist in the causes of mortality across countries and regions. Cause of death statistics are used to periodically review health priorities, set research agendas and monitor progress towards National and Global health and development goals. The present study was aimed to study the causes of all deaths in patients admitted to a Tertiary Care teaching hospital in Bagalkot, Karnataka, India in the year 2019 and to determine epidemiological transition in mortality data. **METHODS:** A retrospective study of all deaths that occurred in the year 2019 in Hangal Sri Kumareshwar hospital and Research Centre, Navanagar, Bagalkot, Karnataka was done by analyzing the records from Medical Records Department after Institutional Review Board clearance. Data regarding age, sex, area of residence, ward of admission and cause of death was noted and analyzed using percentages and chi square test. **RESULTS:** Out of 422 deaths during 2019 in HSK hospital, 59.24 % were males and 40.76 % were females. Majority (71.56%) were from rural areas. Majority of the deaths (72.27%) were observed in patients from Bagalkot district followed by 9.48% from Vijayapura district and 6.4% from Belagavi district. Maximum number of deaths (32.46 %) was observed in those more than 61 years of age followed by those between 41 to 60 years of age. Overall, maximum number of deaths (66.58 %) was due to a Non communicable disease. Infectious and parasitic disease contributed to 11.14 % of deaths. Cardio vascular disease contributed to 21.80 % deaths. **CONCLUSIONS:** Scientific reporting of epidemiological patterns of disease and its risk factors needs to be complemented with active knowledge translation efforts to use these death statistics to improve public health programs and set priorities

KEYWORDS

Mortality, Tertiary Care Hospital

BACKGROUND

Wide disparities exist in the causes of mortality across countries and regions. These differences reflect inequalities in access to food, safe drinking water, sanitation, medical care and other basic human needs. Recent decades have observed great advancements in health and survival worldwide. Mortality studies are needed for a meaningful planning of health care and allocation of resources.[1] Civil registration of all deaths with certification and coding of the cause by a qualified physician based on International classification of disease and related health problems is the preferred standard for generating cause of death statistics. Most deaths whose cause is certified occur in hospitals.[2] Cause of death statistics are used to periodically review health priorities, set research agendas and monitor progress towards National and Global health and development goals.[3] The spectrum of patients admitted to a tertiary care hospital is different from the peripheral hospital.[4] The present study was aimed to study the causes of all deaths in patients admitted to Hangal Sri Kumareshwar hospital and Research centre, Navanagar, Bagalkot, Karnataka, India in the year 2019 and to determine epidemiological transition in mortality data and the risk factors.

METHODS

A retrospective study of all deaths that occurred in the year 2019 in Hangal Sri Kumareshwar hospital and Research Centre, Navanagar, Bagalkot, Karnataka was done by analyzing the available records from Medical Records Department after Institutional Review Board clearance. Data regarding age, sex, area of residence, ward of admission and cause of death was noted. The deaths have been classified according to International Classification of Diseases – 10th revision. The data was analyzed using percentages and chi square test.

RESULTS

Out of 422 deaths during 2019 in HSK hospital, 64.96% were males and 35.04% were females. Majority (71.56%) were from rural areas (Table 1)

Table 1 Distribution according to area of residence

Area	Male	Percent	Female	Percent	Total	Percent
RURAL	176	70.40%	126	73.26%	302	71.56%
URBAN	074	29.60%	046	26.74%	120	28.44%
TOTAL	250	100	172	100	422	100

DF = 1 $x^2 = 0.4084$ p = 0.5228

Majority were from Bagalkot district (75.91%).Maximum numbers of deaths (32.46%) were observed in those between 61 to 80 years of age followed by those between 41 to 60 years of age (Table 2) Overall, 72.02% of deaths were below 60 years of age

Table 2 Distribution of mortality according to age and sex

Age	Male	%	Female	%	Total	%
Birth to < 28 days	35	14.00	16	9.30	51	12.08
28 days to 1 year	10	4.0	03	1.74	13	3.09
1 to 5 years	07	2.8	08	4.65	15	3.55
6 to 15 years	05	2.0	06	3.5	11	2.60
16 to 20 years	02	0.8	11	6.4	13	3.09
21 to 40 years	35	14.00	32	18.6	67	15.88
41 to 60 years	65	26.00	28	16.28	93	22.04
61to 80 years	78	31.20	59	34.30	137	32.46
>81 years	13	5.2	09	5.23	22	5.21
Total	250	100	172	100	422	100

DF = 8 $x^2 = 21.78$ p= 0.0053

Majority of the deaths (45.98%) had occurred in General Medicine ward followed by 20.92% in Neonatal intensive care unit. Deaths in Neurology department were 12.8% and PICU contributed to 8.53% of the total. (p=0.064)

Overall, maximum number of deaths (69.35%) was due to a Non communicable disease and was found to be statistically significant. Infectious and parasitic disease contributed to 10.46% of deaths. Cardio vascular disease contributed to 16.30% deaths. (Table 4)

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

Communicable disease	Male	Percent	Female	Percent	Total	Percent
Infectious & parasitic disease	24	9.6	23	13.37	47	11.14
Inflammatory disorders of CNS	13	5.2	11	6.39	24	5.69
Respiratory tract infections	28	11.2	19	11.05	47	11.14
Infections of skin & subcutaneous tissue	11	4.4	06	3.50	17	4.03
Infections specific to Perinatal period	04	1.6	02	1.16	06	1.42
Total	80	32.00	61	35.47	141	33.42
DF= 4 x2 = 1.516 p = 0.8238						
Non Communicable disease	Male	Percent	Female	Percent	Total	Percent

Chronic liver disease	24	9.6	0	0	24	5.69
Neoplasm's	09	3.6	10	5.81	19	4.50
Cardio Vascular Disease	48	19.2	44	25.58	92	21.80
Conditions in Perinatal period	29	11.6	12	6.98	41	9.71
Digestive system	01	0.4	04	2.32	05	1.18
Congenital malformation	05	2.0	01	0.58	06	1.42
Respiratory system	08	3.21	02	1.16	10	2.37
Genitourinary system	07	2.8	03	1.74	10	2.37
Pregnancy, childbirth & puerperium	0	0	07	4.07	07	1.66
Diabetes	21	8.4	15	8.72	36	8.53
Road traffic accident	11	4.4	02	1.12	13	3.08
Burns	0	0	09	5.23	09	2.13
OP poisoning	07	2.8	1	0.58	08	1.90
Total	170	68.00	110	64.53	280	66.58
DF = 12 x2 = 58.5 p = < 0.0000001						

Regarding deaths in males between 21 to 40 years of age, organo phosphorous poisoning and chronic liver disease contributed each to 18.42% deaths followed by 13.16% deaths due to a road traffic accident. Acquired immuno deficiency syndrome and pulmonary tuberculosis was responsible for 7.89% deaths each. In females of the same age group, sepsis and burn injury contributed each to 12.5% deaths.

In males between 41 to 60 years of age, the most common cause for death was chronic liver disease (24.05%) followed by Ischemic heart disease (13.92%) and diabetes mellitus (12.66%) Hypertension contributed to 7.59% deaths. In females between similar age group, diabetes mellitus contributed to 16.66% of deaths followed by chronic obstructive pulmonary disease and ischemic heart disease responsible for 13.33% deaths each. Necrotizing fasciitis and hypertension contributed each to 10% of deaths.

When the cause of death in elderly more than 61 years was analysed, it was observed that majority of the deaths (38.36%) was due to a cardio vascular disease followed by diabetes mellitus causing 16.35% deaths. Respiratory tract infections caused 14.47% of the deaths whereas soft tissue infections led to 10.06% deaths and 5.66% deaths was due to tuberculosis.

DISCUSSION

In the present study, majority of deaths were observed in males (64.96%) and this finding is similar to other studies.[5,6,7] It was observed that 71.53% of deaths were in those residing in rural areas. This fact can be explained that this is a tertiary care teaching and referral hospital. Premature mortality by age 60 contributed for one third of total deaths in this study and this observation is similar to another study.[8]

The age curve of mortality is similar everywhere. Mortality is high during infancy and drops to lowest level in childhood and gradually increases during third and fourth decades.[5] This observation is seen in the present study. Neonatal mortality was 12.08%.The main reasons were infections in perinatal period, low birth weight and congenital malformations. Neonatal death is proxy for evaluating National Programs aimed at infants.[9]

About 70% of deaths in this study was due to a Non Communicable disease and indicates epidemiological transition and this observation is similar to other studies.[8] Chronic non communicable diseases are increasing in the adult population in both developed and developing countries and can be attributed to changes in life style and behavior. In males between 21 to 40 years of age, organo phosphorous poisoning, chronic liver disease and road traffic accidents were leading causes of deaths and can be attributed to social and economic issues which have to be addressed by the concerned public health departments. Mental health problems are on the rise due to the prevailing socio economic situation in the rural areas leading to abuse of alcohol which in turn lead to road traffic accidents in the most productive age group.

In females of the same age group, sepsis and burn injury was the leading causes of death. Sepsis can be explained by the anemic status of the reproductive age women .Burn injury could be accidental, suicidal or homicidal and is a prevailing social issue to this day in our country and women of this age group are most vulnerable.

In males between 41-60 years of age, the most common causes of death were chronic liver disease, ischemic heart disease and diabetes mellitus. The risk factor attributable to chronic liver disease was alcoholism which is a lifestyle and behavior issue. With respect to ischemic heart disease and diabetes mellitus, the risk factors are stress, life style with regard to nutrition and sedentary habits. In females, between similar age group, diabetes mellitus, chronic obstructive pulmonary disease and ischemic heart disease were the leading causes of death. The reasons could be attributed to sedentary lifestyle, indoor air pollution, faulty nutritional habits and stress. These findings are similar to another study.[4]

In elderly more than 61 years of age, maximum number of deaths was due to cardiovascular disease followed by diabetes mellitus and respiratory tract illness. These findings are very similar to another study done in India.[11] A holistic approach is needed for the health care of the elderly in India.

World Health Organization is committed to supporting countries to achieve the Sustainable Development Goal 3,target (3,4) to reduce by one third premature mortality from non communicable diseases by 2030.It has been observed that diet related risk factors are a major driver of preventable deaths due to cardio vascular disease,

CONCLUSION

Scientific reporting of epidemiological patterns of disease and its risk factors needs to be complemented with active knowledge translation efforts to use these death statistics to improve public health programs and set priorities. Counting the dead and describing the causes of their deaths are central to reducing premature mortality worldwide.[12]

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