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AUDIT OF MORTALITY PATTERNS AMONG HOSPITALIZED PATIENTS IN TERTIARY CARE HOSPITALS FAISALABAD

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ABSTRACT

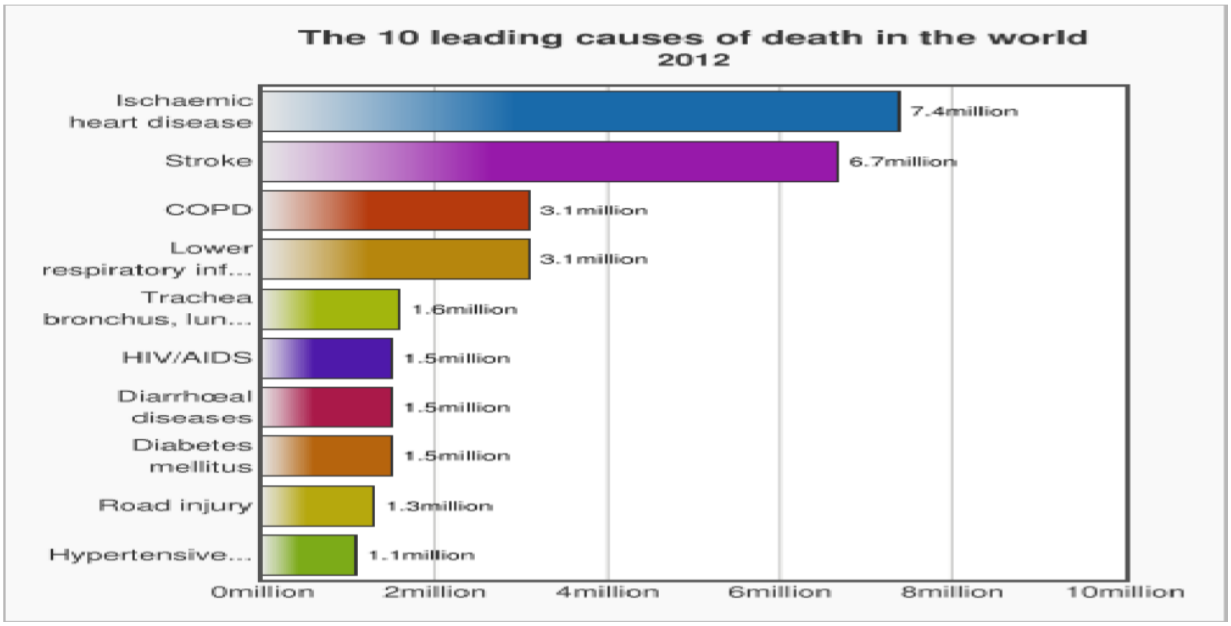
Background: In human life, probability of death to occur is 100%. Statistics on patterns and causes of death in a community reflect burden of disease and its related determinants. They are often employed to indicate priorities for health actions and allocation of resources. They also provide basis for further epidemiological research. In many cases the cause of death is predictable and largely preventable through pro- active multi-disciplinary coherent strategies. **Objective:** To study mortality trends and its determinants in patients admitted in public sector tertiary care hospitals in Faisalabad. **Methods:** This study is descriptive cross sectional by retrospective examination of medical record of all deaths which occurred in hospitalized patients at DHQ Hospital Faisalabad. **Period:** 1st January 2018 to 31st December 2018. During this period the record of 7359 expired patients was studied and analyzed. The study variables were socio-demographic, department wise admission and mortality, hospital stay and primary cause of death. Statistical analysis was done in percentages and other relevant tests to know the significance of association among various variables. **Results:** In total 178290 indoor patient admissions, 7359 patient expired (4.13%). Mortality in hospital admitted children age group was 12.59% while in old age group 5.27%. In study period of one year, number of male deaths were 5154(70.09%) and female were 2205 (29.96 %). Average period of stay in Hospital was 1 to 2 days in acute cases while 1 to 2 weeks in chronic cases. The main killer diseases ranked in order of proportionate death rates, were liver diseases (Hepatitis), Pediatric birth asphyxia & infections, RTA cardiac diseases (MI & CVA) suicidal poisoning, Pulmonary diseases tetanus septicemia/infectious diseases & rest of the other groups. **Conclusion:** This study concluded mortality prevalence 4.13%% while primary cause of mortality mostly pertained to infectious diseases, accounting for chronic liver disease, pneumonia/respiratory tract diseases, tetanus, septicemia and NCD like cardiovascular diseases, accidental injuries& poisoning. Therefore, we are facing dual burden of diseases CD & NCD. Health policy insight of mortality data and improved health care system can minimize these figures of mortality.

KEYWORDS: Mortality trends, DHQ Hospital Faisalabad Pakistan, Wards, cause of death, Communicable and non- communicable diseases.

INTRODUCTION

Mortality pattern is the only health care indicator which reflects consequent effects of health events but mostly it is poorly documented lacking retention of up to date medical record, reliability and precision especially in rural part of the countries.[1] Mortality and morbidity data is valuable tool to assess burden of disease and health status of the population.[2] Health problems vary considerably in the different parts of the world. Although in 19th and early 20th century communicable diseases dominated the scene but in recent years non communicable diseases account for six out of seven deaths in the developed world and half of all deaths in the developing world.[3] As per WHO fact sheet 310/2012, an estimated 5.6 million people died every year. In 68% cases the cause of death was NCD's as compared to 60% in2000. The main 4 killers NCD's are cardio vascular diseases, cancers, diabetes and chronic lung disease. Single CVD killed 17.5 million people (IHD=7.4 m +Stroke= 6.7 million) in 2012 meaning 3 in every 10 total deaths. Accidental injuries rank 5th and are responsible for 08% of total global deaths. The newly adopted 2030 agenda by WHO for Sustainable Development Goals (SDG's) has set an ambitious road safety target of halving the global number of deaths and injuries from road traffic crashes by 2020.[4] About 28 million (57%) out of 38 million of global NCD deaths in 2012 were in low and middle income group countries while 81% & 87% in upper middle income and high

income group countries respectively. In high income countries, 7 NCD deaths in 10 total deaths with I NCD death in 100 deaths in children under15 years while in low income countries 4 out of 10 with 2 in every 10 deaths in children were reported.[5] HIV deaths decreased slightly while TB is still in 15 top killer diseases. Maternal deaths dropped from 427,000 in the year 2000 to 289,000 in 2013. Injuries continue to kill 5 million people each year. In 2012, 6.6 million children died before reaching 1st birthday due to pre maturity, birth asphyxia/trauma, pneumonia and diarrheal diseases. Smoking is the often hidden cause of death 1 in10 deaths.[5] The Pakistan demographic and health survey conducted in 2006-07, gave maternal mortality ratio 276 per 100,000 live births while target given by WHO up to 2015, was 140 per 100,000. Like all developing countries, Pakistan also lacks in properly documented mortality data. Hospital record department maintains all such data in teaching and other referral hospitals as per relevant Government rules but mortality data from this source has its limitation, the incomplete reporting of death, lack of accuracy, lack of uniformity, choosing a single cause of death, diseases of low fatality and above all, because all deaths do not take place in hospitals, The reason may be poor health infra-structure, casual attitudes, lack in owning responsibility and of course weak audit accountability system. However this study was carried to know major killer diseases for national & international comparison. Source; WHO data fact sheet 2012. The published mortality data of this area is inadequate and hardly trace able. The present study is being conducted in public sector tertiary care hospital to review mortality trends and causes of deaths.



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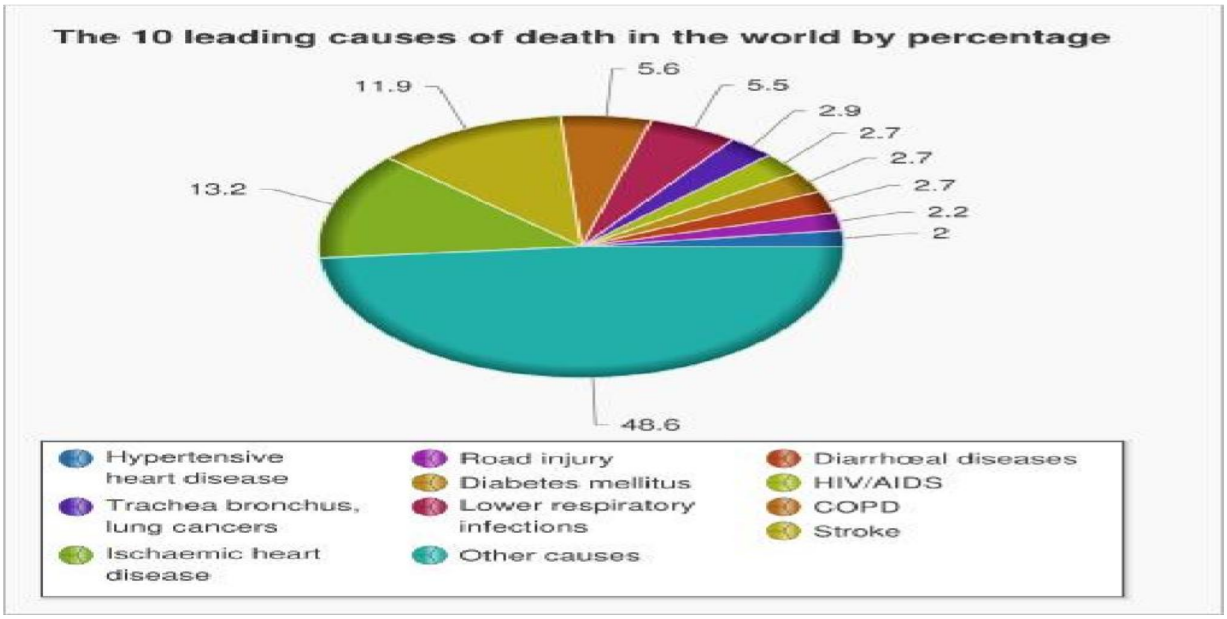

METHODOLOGY

Study Setting: This study is descriptive / cross sectional, retrospective review analysis of all deaths occurred during study period of three years (1st Jan 2015 to 1st Jan 2018). The study was conducted at Hospital Record Department DHQ & Allied Hospitals Faisalabad. They are referral tertiary care teaching Hospitals, affiliated with Punjab Medical College Faisalabad. The study variables were demographic details, hospital stay, provisional / primary diagnosis and cause of death. The data was collected and recorded on pre tested research tables mentioning direct cause of death, antecedent causes and other significant conditions. Analysis was done by using basic epidemiological measurements and SPSS version 16. Chi- square test was used to find difference of proportions while P < 0.05 was taken significant statistically. For continually changing variables, +SD was calculated.

Case definition: Any patient who got admitted in patient department and expired during stay in hospital due to Non- medico-legal causes.

Case inclusion and exclusion criteria: All cases fulfilling case definition criteria were included while those having incomplete medical record were excluded from this study.

Study variables

Data collection /Statistical methods: A pretested/ethical committee approved pro-forma was used. All the record information was collected, examined, phrased in tables and then analyzed by the author. The study variables included were, Socio demographic data, hospital stay, primary diagnosis and possible cause of death. Total admissions in this period were taken as denominator to calculate proportionately mortality rates. The data of-----patients was analyzed. Statistical analysis for all study variables regarding means, percentages and frequencies was done using EXCEL & SPSS version15 software. Chi- square test and test of proportions were also used for analysis and comparison. The value of P <0.05 was taken statistically significant.

RESULTS

1-Socio-demographic profile: In total 178290 indoor patient admissions, 7359 patient expired (4.13%). The mortality in children age group was 12.59% while in old age group 5.27%. Among total deaths 7359 male deaths were 5154 (70.04%), female 2205 (29.96%) While Maternal Mortality 29/9918 (i.e. .29%) and children deaths were 1746 (1259%). The mean hospital stay in medical and allied departments was 1-2 days while in surgical and allied departments was up to 1 to 2 weeks. The main killer diseases ranked in order of proportionate death rates, were 1-liver diseases (Hepatitis), 2- Pediatric birth asphyxia & infections, 3- RTA 4- Cardiac diseases (MI & CVA) 5-suicidal poisoning6- Pulmonary diseases 7-Tetanus 8Septisemmia/infectious diseases& rest of the other groups. Detail is shown in tables-1 to 4.

Table 1: Demographic Groups Mortality details.

Age groups	No. of Admission	No. of Death	Percentage
00-14 years	14009	1764	12.59
15-29 years	45017	901	2.00
30-44 years	25679	411	1.60
45-59 years	43811	1500	3.42
60->60 years	49774	2625	5.27
Total	178290	7359	4.13

*Source- Mortality Medical Record; Indoor Departments DHQ Hospital Faisalabad 2018.

Table 2: Departments based Mortality Details.

Sr	Department/ward	Deaths=f	Sub Total Deaths	Patient Admissions	Sub Total Admissions	Death Rates	Ranking order
1	Medicine-U 4 &5	963+1027	1990	5504+5765	11269	17.66%	4th
2	Pediatrics	1746	1746	14009	14009	12.59%	5th
3	Pulmonology	103	103	1485	1485	06.94%	7th
4	Surgery-U 4&5	49+58	107	2480+2148	4628	02.31%	8th
5	Orthopedics	10	10	1147	1147	00.87%	9th
6	Obstetric Gynecology	29	29	9918 +5621	9918 15539	00.29% 00.19%	11th
7	A & Emergency (Poisoning-suicides)	2162 477	2162 477	146304 477	146304 477	01.48% 100%	10th **1st**
8	ICU	298	298	3005	3005	09.92%	6th
9	Tetanus Ward	36	36	73	73	49.32%	**2ed**

10	Liver Center	853	853	3682	3682	23.17%	**3rd**
11	Dialysis- Nephrology	15		20379	20379	00.07%	13th
12	ENT	2	2	1107	1107	00.18%	12th
13	Psychiatry	1	1	2238	2238	00.05%	14th
14	Dermatology	1	1	548	548	00.18%	12th
15	Ophthalmology	00	0	2174	2174	00	
	Results	7359			178290		

Total = 178290+1250= 179540.

Note: 1250 patients received expired during this study period.

*Source- Mortality Medical Record; Indoor Departments DHQ Hospital Faisalabad 2018

Table 3: Disease wise detail.

Sr No	Disease Groups	Diseases included	Admissions	Deaths	A/D %	Ranking
1	Poisoning	Wheat pills (Phosphate)	477	477	100%	1st
2	Tetanus	Tetanus cases	73	36	49.32%	2ed
3	Liver Diseases	Hepatitis, cirrhosis, CA liver	9512	1753	18.43%	3rd
4	Cardiac Diseases	IHD, MRI, CVA, Hypertension	7680	1094	14.24%	4th
5	Pediatrics D	B A, immaturity, ARI, Diarrhea	14009	1746	12.46%	5th
6	Pulmonary D	Asthma, COPD, TB, ARI	1485	103	6.94%	6th
7	Road T accidents	All types of roadside T accidents	146304	3280	02.24%	7th
8	Received dead	Died in way to hospital		1250		

*Source- Mortality Medical Record; Indoor Departments DHQ Hospital Faisalabad 2018

Table 4: Disease wise proportionate deaths detail.

Sr No	Disease Groups	Diseases included	Total Deaths	Disease Wise D	Proportional Death rates	Ranking
3	Liver Diseases	Hepatitis, cirrhosis, CA liver	7359	1753	23.82%	1st
5	Pediatrics D	B A, immaturity, ARI, Diarrhea	7359	1746	23.72 %	2ed
6	Road T accidents	All types of road T accidents	7359	1648	22.39%	3rd
4	Cardiac Diseases	IHD, MRI, CVA, Hypertension	7359	1094	14.87%	4th
5	Poisoning	Wheat pills (Phosphate)	7359	477	6.48%	5th
6	Pulmonary D	Asthma, COPD, TB, ARI	7359	103	1.40%	6th
7	Tetanus	Tetanus cases	7359	36	0.49%	7th
8	Miscellaneous Group deaths	All remaining Groups	7359	502	6.82%	

*Source- Mortality Medical Record; Indoor Departments DHQ Hospital Faisalabad 2018

DISCUSSION

Mortality pattern statistics are a valuable data to be used for comparison of mortality among different groups and in hospital audit systems.[6]These statistics are also important for planning, social and economic development of a country.[6] this study shows analysis of mortality and its common causes in different wards of a referral tertiary care teaching hospital. Present study shows mortality prevalence 4.13% and leading cause of death in ranking order regarding admissions to deaths ratio was: 1-Suicidal poisoning (wheat pills) 100%, 2-Tetanus 49.32% 3-liver diseases 18.43%, 4- Cardiac diseases 14.24%, 5- Pediatric diseases 12.46%, followed by RTA 7.09% and Pulmonary causes 6.94%. The most common cause of death after suicidal poisoning & tetanus was Liver diseases and cardiac diseases in older age groups while respiratory & diarrheal diseases in children groups. The results are similar to following studies regarding respective discipline ranking order. In study carried by Salimuddin Aziz in a trust hospital of Karachi, the primary cause of death was infections (27.6%) followed by respiratory disorders (21.6%) and CVD (13.9%).[7] In study by Fauzia Fahim carried out in Peshawar, bleeding was the leading cause of death accounting for 38.89% of maternal deaths.[8] Non-Communicable diseases are replacing communicable diseases as shown in study by Lata Godale.[9] Significant number deaths were observed in males, rural people and in age group >60 years.[10] Septicemia (34.6%) was the leading cause of death among all pediatric age groups.[11] Most of the mortalities were in the medical wards (38.9%) followed by pediatrics (34.6%) and surgical wards (18.2%) wards.[12] Over all leading cause of death was the infections group accounting for (37.6%) deaths followed by cardiovascular system related (24.7%) deaths.[13] The leading cause of death was septicemia (24%) followed by cardiac diseases (14.63%) with dominance.[14]

All these national and international studies show that communicable diseases are still the major cause of death in most of the developing countries while reverse is true for developed countries. The maximum death toll in

males, children &old age group is nearly same for all global countries. The results of present study conform to the results of studies conducted in other developing countries while they are higher than in developed western world.

CONCLUSION

The mortality pattern results of this study shows that unlike developed countries, we face burden of both communicable as well as non- communicable diseases. This study also revealed higher mortality prevalence among males which are our major economically productive class. Ultimately higher mortality among male will retard economic growth rates. So there should be strong health policy for preventive as well as curative health services. Government should initiate better health awareness campaigns for healthy life styles, environment modifications, traffic and occupation safety measures. Insufficient, inadequate existing health care system should be mended according to population need. Mortality record maintenance warrants attention of all relevant institutions to computerize this record in data base for permanent availability.

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