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A Study of Morbidity Pattern in Indoor Patients in a Tertiary Care Hospital in Lucknow

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ABSTRACT

Introduction-Health statistics decide the foundation and course of health policies and programs. Indicators such as the Birth Rate, Death Rate, Life Expectancy at Birth, Morbidity/Mortality patterns etc. reveal the extent and nature of the health problems in the community and thus assists in establishment of the priorities for policy planning and implementation. The present study is being done to assess the morbidity pattern in indoor patients in a tertiary care hospital.

Materials & methods- A cross sectional study done in a tertiary care hospital with sample size of 4511.

Results- the study found out that maximum patient (44.4%) were admitted under Chapter I i.e. certain infectious and parasitic diseases and 72% of hospital admissions were accounted for by 12 common causes of morbidity. The results of our study were comparable with other studies, differences being there due to limitation of our study being limited to IPD patients.

Conclusion-Leading causes of morbidity in all ages and both sexes which require hospitalization are acute infectious diseases.

Keywords: Hospitalization, IPD, Morbidity, Mortality.

INTRODUCTION

Health policies of a country are a key factor in determining the health status of a population and for evidence based formulation of health policies, health statistics is of crucial importance(1). The health indicators and patterns impact the process of policy planning and resource allocation(2).Birth rate, death rate, life expectancy at birth, and morbidity/mortality patterns etc. are vital measures of the population's health. For indicators to be calculated, it is essential to identify and quantify various diseases that affect the health of the population. Morbidity pattern shows the magnitude of the disease and time trends that highlight demographic differences in disease burden by age, sex, ethnic status etc(3). It shows the extent and nature of the disease load in the community, and thus assists in establishment of the priorities. . It is also needed for monitoring and evaluation of disease control activities. The pattern of mortality and morbidity helps to allocate the resources and monitor the trends for the effect of intervention. The major objective of the present study was to assess the morbidity pattern in indoor patients in a tertiary care hospital in Lucknow and the study was undertaken because no such study has been conducted in a tertiary hospital in northern India.

MATERIALS & METHODS

It was a cross sectional study conducted in Vivekananda Polyclinic and Institute of Medical Sciences (VPIMS), Lucknow, a tertiary care hospital and the morbidity data was collected from indoor patients admitted from July,2008 to June,2009. All the admitted patients in the study period who consented were included in the study. A total of 4511 patients consented to be the part of the study.

Information regarding the socio-demographic characteristics and morbidity pattern was collected through a pre-tested, pre-structured questionnaire and included age, sex, duration of stay, diagnosis etc. International classification of Diagnosis (ICD code)-10 was assigned to every diagnosis[1].Appropriate statistical tests were applied and all statistical calculations were performed by using statistical software package Stata 11.2. Another set of data to observe the pattern of admissions and seasonal trends was retrieved for the period of 2006 to 2009.The inclusion of only indoor medical cause patients in a hospital setting limited the scope of the study.

RESULTS

Pattern of Admissions: The pattern of admission was studied over three years from July 2006 to June 2009. The trend analysis (fig. 1) shows that admissions varied from 324 to 596 per month with a mean of416+53/month. The difference was statistically insignificant (p=0.783). Admissions appear to increase in August month and decrease in February month every year in the graph but the difference was not statistically significant.Seasonal trend analysis shows an apparent dip in admissions in winter season(Oct-Jan period) every year and peak in admissions in monsoon (July-Sept.) every year (p=0.505).

Pattern of Morbidity: *ICD 10 Chapter wise ranking*-A total of 4511 patients, admitted to the medical service of the VPIMS from July 2008 to June 2009, were studied for the analysis of morbidity pattern.

Table-1 shows that 2004 (44.4%) patients were admitted under Chapter I i.e. certain infectious and parasitic diseases. While the diseases of the digestive system (Chapter IX) constituted 12.1% of cases, diseases of Endocrine, nutritional and metabolic diseases(chapter IV) 9.9%, diseases of the genitourinary system (Chapter XIV) 8.1% and diseases of the respiratory system (Chapter X) 7.0%.

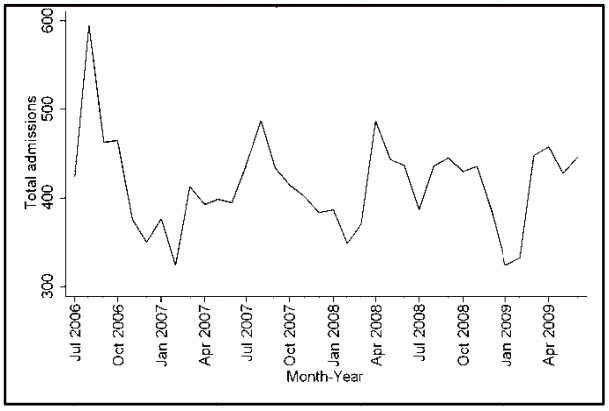

Figure 1: Trend analysis of total admissions

Table 2 shows that acute gastroenteritis, viral fever, enteric fever, were the most common infectious and parasitic diseases (chapter I) and acute gastritis, Acid peptic disease and chronic liver disease were three most common diseases among diseases of the digestive system (chapter XI).

Table-1: Chapter-wise Distribution of Morbidity Data

ICD Chapter		Admissions(n=4511)			Age of Patients					
		M	F	Total (%)	15-44 yrs		45-59 yrs		>60 yrs	
					M	F	M	F	M	F
I.	Certain infectious and parasitic diseases	1144	860	**2004(44.4)**	685	501	279	220	180	139
II.	Neoplasms	10	15	**25 (0.5)**	1	5	5	3	7	4
III.	Diseases of the blood and blood forming organs and certain disorders involving the immune mechanism	102	146	**248 (5.4)**	58	100	26	28	18	18
IV.	Endocrine,nutritional and metabolic diseases	264	185	**449 (9.9)**	28	18	102	91	134	76
V.	Mental and behavioural disorders	22	83	**105 (2.3)**	16	65	4	17	2	1
VI.	Diseases of the nervous system	24	21	**45 (0.9)**	16	17	4	3	4	1
IX.	Diseases of the circulatory system	185	7	**312 (6.9)**	42	24	48	55	95	48
X.	Diseases of the respiratory system	186	132	**318 (7.0)**	28	47	46	46	112	39
XI.	Diseases of the digestive system	285	265	**550 (12.1)**	141	152	83	78	61	35
XII.	Diseases of the skin and subcutaneous tissue	3	-	**3 (0.06)**	2	-	1	-	-	-
XIII.	Diseases of the musculoskeletal system and connective tissue	13	20	**33 (0.7)**	3	3	4	10	6	7
XIV.	Diseases of the genitourinary system	158	209	**367 (8.1)**	47	107	29	46	82	56
XVII.	Congenital malformations, deformations and chromosomal abnormalities	3	1	**4 (0.08)**	1	1	-	-	2	-
XVIII	Symptoms,signs and abnormal clinical and laboratory findings	30	14	**44 (0.9)**	11	8	5	4	14	2
XIX.	Injury,poisoning and certain other consequences of external causes	2	2	**4 (0.08)**	2	1	-	1	-	-

Certain diseases of Skin & subcutaneous tissue (chapter XII) like boils (0.02%), diseases of Congenital malformations, deformations and chromosomal abnormalities (chapter XVII) like VSD(0.02) and Diseases of the nervous system (chapter VI) like Meningitis(0.04) were relatively uncommon causes of Morbidity.

Table-2: Common Causes Of Morbidity Under Each Chapter

ICD Chapter		Common causes of Morbidity(%)(N=4511)
VII.	Certain infectious and parasitic diseases	AGE*(9.9),Viral fever(9.4), Enteric fever(6.0)
VIII.	Neoplasms	Carcinoma gall bladder(0.2), AML(0.1), Bronchogenic carcinoma(0.06)
IX.	Diseases of the blood and blood forming organs and certain disorders involving the immune mechanism	Anemia(5.2),Thrombocytopenia(0.1),Vitamin B12 deficiency anemia(0.04)
X.	Endocrine,nutritional and metabolic diseases	DM type-2(9.7), DM type-1(0.1), Hypoglycemia(0.04)
XI.	Mental and behavioural disorders	Anxiety Neurosis(1.7),Conversion Reaction(0.3),Depression(0.1)
XII.	Diseases of the nervous system	Seizure disorder(0.4), Migraine(0.4), Meningitis(0.04)
IX.	Diseases of the circulatory system	Hypertension(3.8),CVA(1.7), CAD/IHD(0.3)
X.	Diseases of the respiratory system	Chronic obstructive airway disease with acute exacerbation(5.4),LRTI(0.6)Bronchial asthma(0.3)
XI.	Diseases of the digestive system	Acute gastritis(4.5),Acid peptic disease(2.1),Chronic liver disease(1.5)
XII.	Diseases of the skin and subcutaneous tissue	Psoriasis(0.04), Boils(0.02)
XIII.	Diseases of the musculoskeletal system and connective tissue	Rheumatoid arthritis(0.3),Cervical spondylosis(0.2),Back pain(0.1)
XIV.	Diseases of the genitourinary system	UTI(4.3), CRF(2.8), ARF(0.6)
XVII.	Congenital malformations, deformations and chromosomal abnormalities	Polycystic kidney disease(0.06),VSD(0.02)
XVIII	Symptoms, signs and abnormal clinical and laboratory findings	Generalised weakness(0.5),Muscular chest pain(0.2),Loss of appetite(0.06)
XIX.	Injury, poisoning and certain other consequences of external causes	Drug reaction(0.08)

*AGE = Acute Gastroenteritis

Table-3: Most Common Causes of Morbidity

Primary Diagnosis	ICD-10 Code	Admissions (N=4511)			Age Distribution (Years)					
		M	F	Total (%)	15-44		45-59		≥60	
					M	F	M	F	M	F
Acute Gastroenteritis	A09	193	256	**449(9.9)**	105	138	53	69	35	49
DM type-2	E11	256	183	439(9.7)	21	17	102	90	133	76
Viral fever	B34.9	276	152	**428(9.4)**	142	57	81	62	53	33
Enteric fever	A01.0	158	114	**272(6.0)**	120	78	29	29	9	7
Chronic obstructive airway disease with acute Exacerbation	J44.1	155	89	**244(5.4)**	14	18	38	36	103	35
Anemia	D64.9	97	141	**238(5.2)**	53	95	26	28	18	18
Acute Viral Hepatitis	B19.9	159	71	**230(5.0)**	111	37	32	17	16	17
Pulmonary Tuberculosis	A16.2	144	84	**228(5.0)**	74	47	37	21	33	16
Acute Gastritis	K29.1	47	156	**203(4.5)**	28	105	5	43	14	8
UTI	N39.0	53	142	**195(4.3)**	33	93	10	31	10	18
Hypertension	I10	106	69	**175(3.8)**	28	16	25	31	53	22
Malaria	B54	87	55	**142(3.1)**	64	42	16	10	7	3

Table 3 illustrates acute gastroenteritis (A09) to be the most common cause of morbidity accounting for 9.9% of total patients with female preponderance and maximum burden in 15-44 years of age group; while least in age group >60 years. Diabetes Mellitus type II (E11) and its complications were the second most common cause of morbidity (9.7%) with male preponderance and highest in > 60 years age group. Third most common cause was Viral fever (B34.9) being 9.4%, being higher in males and in 15-44 age group. The most common diseases in males were Viral Fever, Diabetes Mellitus type 2, COPD with acute exacerbation, Acute Viral Hepatitis, Pulmonary Tuberculosis while in women most common causes were Acute gastroenteritis (A09) with 256(12.31%), Diabetes mellitus type 2 (E11) (8.80%), Acute gastritis (K29.1) (7.50%), Urinary tract infection (N39.0) (6.83%), Viral fever (B34.9) (7.31%), Anemia (D64.9) (6.78%). The pie chart (figure 2) shows that 72% of hospital admissions were accounted for by 12 common causes of morbidity. The table also illustrates that the acute infectious diseases were the most common causes of morbidity in the younger age group

15-44 years (Acute gastroenteritis, Viral fever, Enteric fever, Acute viral hepatitis) while both chronic diseases (e.g.DM type2, COPD, Hypertension, Anemia) and acute infectious diseases (e.g. Viral fever, AGE, Enteric fever, Acute viral hepatitis, Acute gastritis) are common in the age group of 45-59 years. Chronic diseases like DM type 2, COPD, CRF, Hypertension, CVA, Anemia are more common than infectious diseases in the age group >60 years.

DISCUSSION

Our study showed that acute gastroenteritis (9.9%), diabetes mellitus type 2 (9.7%), viral fever (9.4%), enteric fever (6.0%), chronic obstructive pulmonary disease (5.4%), anemia (5.2%), acute viral hepatitis (5.0%), pulmonary tuberculosis (5.0%), acute gastritis (4.5%), urinary tract infection (4.3%), hypertension (3.8%) and malaria (3.1%) were the leading causes of morbidity in our hospital while the Ministry of Health & Family Welfare, Government of India (2005)[2] shows that the leading causes of morbidity in India were injuries (16.7%), maternal and perinatal conditions (11.6%),cardiovascular diseases (10.0%), mental illness (8.5%), diarrheal diseases (8.2%), childhood diseases (5.4%), cancers (3.4%), tuberculosis (2.8%), HIV/AIDS (2.1%), malaria and other vector borne diseases (1.6%), COPD and asthma (1.5%), refractive errors (1.4%) and diabetes (0.7%). The WHO report "The Global Burden of Disease: 2004 update[3] in 2008 in which revealed the leading causes of morbidity to be lower respiratory tract infections (6.2%), Diarrheal diseases (4.8%), unipolar depressive disorders(4.3%), Ischemic heart disease (4.1%), HIV/AIDS (3.8%), cerebrovascular disease (3.1%), prematurity and low birth weight (2.9%), birth asphyxia and birth trauma (2.7%), road traffic accidents (2.7%), neonatal infections (2.7%), tuberculosis (2.2%), malaria (2.2%), chronic obstructive pulmonary disease (2.0%), refractive errors (1.8%), hearing loss adult onset (1.8%), congenital anomalies(1.7%), alcohol use disorders(1.6), violence(1.4%), diabetes mellitus (1.3%), self-inflicted injuries (1.3%). Most of the findings of our study are in concurrence with the MoHFW report& WHO report, variations may be due to that our study being restricted to indoor medicine department cases only and MoHFW& WHO data also including the morbidity from Obstetrics causes and Infant & Childhood illnesses. The high prevalence of Diabetes Mellitus in our study as comparison to MoHFW/WHO report may be due to the conduction of our study in hospital setting involving indoor cases only.

A retrospective hospital record based study of a teaching hospital in western Nepal by Lamichhaneet al[4]in 2006 demonstrated the morbidity pattern in OPD in which he found that Upper respiratory tract infections and acid peptic disease were the most common diagnosis, similarly in our study the acute gastritis was among the ten most important causes of morbidity.Adebusoye et al[5]in 2009 in their study amongst elderly patients presenting at a primary care clinic in Nigeria found the most prevalent morbidities to be hypertension (40.0%), cataracts (39.4%) and osteoarthritis (26.8%). The prevalence of anemia in that study was 8.0% (females = 11.2%; males = 2.6%), and it was significantly associated with gender (p = 0.001).In a study done by Prakash R et al[6]in Udaipur in elderly(60years and above) in 2004, it was found that 70% elderly were suffering from one or other ophthalmic problems followed by 48% with hypertension, 42% had psycho-social problems, 36% were suffering from respiratory disease and the others were living with musculoskeletal (14.6%), nervous system (8.67%), ENT (8%) and GIT (4.7%) diseases. Our study revealed the prevalence of anemia to be 5.2 % & hypertension to be 3.8%. Such high prevalence of NCD like hypertension in other studies may be due to that the studies being done in elderly subjects.

Another study by Sabdeet al[7]in 2008 studied the morbidity pattern in street sweepers in Nagpur and found that the important morbidities detected were anemia (20.5%), hypertension (9.5%), upper respiratory tract infections (7.3%), chronic bronchitis (5.9%), refractive error (3.7%), pterygium (2.9%), acute atopic conjunctivitis (2.6%) and bronchial asthma (1.8%). A rapid appraisal of morbidity pattern of four villages in Dehradun by Bansal R[8] et al in 2000 revealed that COPD/Asthma and ARI were ranked as first and second health problems in males.

CONCLUSION

Our study found that the Acute infectious diseases were the leading causes of hospitalization in all the ages and both sexes. But the spectrum of diseases differ in males and females like some diseases were more common in males viz, Diabetes mellitus type 2, Viral fever, COPD with acute exacerbation, while others like Acute gastroenteritis, Anemia, Acute gastritis and Urinary tract infection were more common in females.

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