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Morbidity pattern among patients attending geriatric clinic of a tertiary care institution in Chandigarh, Northern India

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ABSTRACT

Background and aims

The increase in geriatric population has led to an increase in elderly surviving with morbidities. The present study was conducted with objectives (1) To find out the magnitude and pattern of diseases among cases reporting in geriatric clinic at a tertiary care institution, and (2) To find out seasonal differences in reporting of geriatric cases, if any.

Methods & results

Secondary data from patient registers who attended Geriatric clinic at tertiary care institution in Chandigarh between March 2014 to February 2015 was analysed. Total of 16 046 elderly reported to geriatric clinic with almost equal proportions according to gender (male, 51.9% and female, 48.1%), and majority from age group 60-69 years (65.1%). The proportions of patients reported during different seasons were 34.2%, 33.9% and 31.8% during rainy, summer, and winter, respectively. Seasonal variations according to gender were not found to be statistically significant ($p=0.07$) but this found to be statistically significant according to age ($p=0.00$). Overall, hypertension was the leading morbidity reported during study period i.e. 41.4%.

Conclusion

The burden of non-communicable diseases was found to be more among elderly. Early diagnosis and regular treatment can cut down the prevalence of these diseases. There require optimum mix of preventive, promotive and curative services for care of geriatric population.

Keywords: Elderly, Diseases, Gender, Seasonal variations.

INTRODUCTION

India has acquired the label of 'an ageing nation' with 8.0 % of its population being aged more than 60 years in 2011 as compare to 6.0% two decades earlier. [1] It is mainly due to decreased fertility and mortality rates as better health services have become available. Whether these added years in elderly are being experiences in good health?

Unfortunately, although there is strong evidence that older people are living longer, the quality of life during these extra years is not up to mark. [2]

The geriatric people suffer from both communicable as well as non-communicable diseases. However, with increasing age, numerous underlying physiological changes occur, and the risk of chronic disease rises further. By age of 60

years, the major burdens of disability and death arise from age related losses in hearing, seeing and moving, and non-communicable diseases, including heart disease, stroke, chronic respiratory disorders, cancer and dementia. These are not just problems for higher-income countries. In fact, the burden associated with these conditions in older people is generally far higher in low- and middle-income countries. [3]

To plan for proper health-care facilities for this group of people, one of the most important information needed is the morbidity profile of the geriatric population. Against this background, present study was conducted with objectives 1. To find out the magnitude and pattern of diseases among cases reporting in geriatric clinic at a tertiary care institution, and 2. To find out seasonal differences in reporting of geriatric cases, if any.

MATERIAL & METHODS

Study area and study design

Chandigarh has a total population of 1 055 450 people including 6.1 percent of its total population elderly (60 years and more). [4] It has registered an increase in elderly population as compared to 2001. The city boasts of excellent health indicators and a high literacy rate of 86.43%. Government Medical College & Hospital (GMCH), Chandigarh is a tertiary care institution. Geriatric clinic at institution is being run by Department of Community Medicine daily. A descriptive study

was done based up on secondary data available with Geriatric clinic from March 2014 to February 2015.

Data collection

Secondary data was obtained from patient registers at Geriatric clinic. The data was collected from March 2014 to February 2015, and analysed by dividing the patients according to gender (male & female) and seasons. The seasons were categorised as summer (March 2014 to June 2014), Rainy (July 2014 to October 2014), winter (November 2014 to February 2015).

Statistical analysis

The data was entered in Microsoft Office Excel 2007. Statistical analysis was done with the help of Open Epi 2007. Descriptive statistical analysis was represented through frequency and percentages. Chi square test was used as test of significance to finding out any seasonal variations as significant or otherwise, considering $p < 0.05$ as level of significance.

RESULTS

Total of 16 046 elderly reported to geriatric clinic during study period. There were almost equal proportions of patients according to gender (male, 51.9% and female, 48.1%). Majority of patients belong to age group 60-69 years (10 438, 65.1%) (Table 1).

Table 1: Distribution of geriatric cases according to gender and age

Age group (Years)	Male N=8342 (%)	Female N=7704 (%)	Total N=16046 (%)
60-69	4875 (58.4)	5563 (72.2)	10438 (65.1)
70-79	2849 (34.2)	1669 (21.7)	4518 (28.2)
80 & above	618 (07.4)	472 (06.1)	1090 (06.8)

The proportions of patients reported during different seasons were as 34.2%, 33.9% and 31.8% during rainy, summer, and winter, respectively. Male patients reported mostly during summer season (53.1%) whereas female patients reported mostly during rainy season (49.0%). These

seasonal variations according to gender were not statistically significant ($p=0.07$). The patients in the age group 60-69 years reported more during all seasons as compare to rest of patients, and this difference was found to be statistically significant ($p=0.00$) (Table 2).

Table 2: Seasonal variations of geriatric cases according to gender and age (Year 2014-15)

Variable	Summer N=5448 (%)	Rainy N=5492 (%)	Winter N=5106 (%)	Chi-square; p
Gender				
Male	2895 (53.1)	2800 (51.0)	2647 (51.8)	5.15; 0.07
Female	2553 (46.9)	2692 (49.0)	2459 (48.2)	
Age group				
60-69	3425 (62.9)	3571 (65.0)	3442 (67.4)	30.02; 0.00*
70-79	1616 (29.7)	1582 (28.8)	1320 (25.9)	
80 & above	407 (07.5)	339 (06.2)	344 (06.7)	

*Significant

Overall, hypertension (HTN) was the leading morbidity reported during study period i.e. 41.4% followed by hypertension and diabetes mellitus (DM) co-morbidity (13.0%) (Table 3). Declining trend was observed for HTN from summer (48.3%) to winter (31.0%) while HTN+DM co-morbidity had shown rising trend from summer (10.4%) to

winter (18.3%) (Fig. 1). Similarly, DM and musculoskeletal disorders (MSD) had shown rising trend from summer to winter i.e. 05.8% to 10.1%, and 04.7% to 07.6%, respectively. Only 02.9% patients reported with coronary artery disease (CAD), maximum during winter season (04.0%).

Table 3: Seasonal variations of geriatric cases according to morbidities (Percentages)

Morbidities*	Summer	Rainy	Winter	Total
HTN	48.3	39.3	31.0	41.4
HTN+DM	10.4	13.0	18.3	13.0
Others	11.1	09.6	11.7	10.6
DM	05.8	08.3	10.1	07.6
APD	05.4	08.3	05.4	06.5
MSD	04.7	05.5	07.6	05.6
CAD	02.5	02.6	04.0	02.9
Surgery	01.9	04.4	00.6	02.6
HTN+CAD	02.2	01.9	03.7	02.4
PUO	03.0	01.8	01.9	02.3
EYE/ENT	02.7	01.7	02.4	02.3
COAD	01.5	02.9	02.5	02.2
HTN+DM+CAD	00.5	00.6	00.8	00.6
TOTAL	100.0	100.0	100.0	100.0

*HTN: Hypertension, DM: Diabetes Mellitus, APD: Acid Peptic Disease, MSD: Musculoskeletal Disorders, CAD: Coronary Artery Disease; PUO:

Pyrexia of Unknown Origin; COAD: Chronic Obstructive Airway Disease.

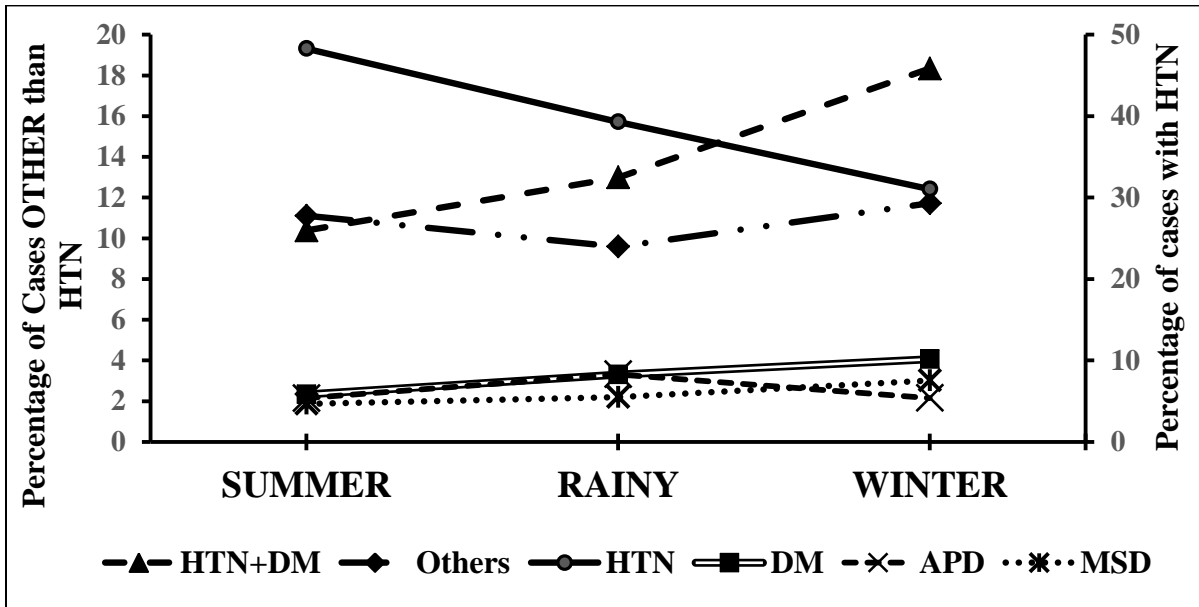


Fig. 1: Distribution of top morbidities reported in Geriatric patients according to seasons during 2014-2015 (HTN + DM = Hypertension + Diabetes Mellitus, HTN = Hypertension, DM = Diabetes Mellitus, APD = Acid Peptic Disease, MSD = Musculoskeletal Disorders)

According to gender, males reported more cases of HTN than females (42.0% vs. 40.8%). Whereas, females reported more cases of HTN+DM and DM than males i.e. 13.3% vs. 12.6% and 08.9% vs.

06.5%. Acid peptic disease (APD) and MSD were also reported more by females than males i.e. 08.7% vs. 04.5%, and 06.7% vs. 04.6% (Table 4).

Table 4: Distribution of morbidities among geriatric cases according to gender and age during ALL seasons (Percentages)

Morbidities*	MALE			Total	Morbidities*	FEMALE			Total
	Age group in years					Age group in years			
	60-69	70-79	80+			60-69	70-79	80+	
HTN	38.5	46.7	49.0	42.0	HTN	39.9	41.3	51.6	40.8
HTN+DM	13.8	12.1	03.8	12.6	HTN+DM	14.3	11.6	07.0	13.3
Others	13.4	08.7	17.6	12.0	Others	10.1	06.2	09.8	09.2
DM	07.2	05.5	05.0	06.5	DM	10.9	03.6	05.6	08.9
MSD	05.3	03.9	00.8	04.6	APD	06.6	15.8	06.0	08.7
APD	05.2	03.7	02.5	04.5	MSD	06.7	07.3	03.7	06.7
HTN+CAD	02.2	05.0	06.3	03.4	EYE/ENT	02.7	02.0	04.2	02.6
COAD	02.7	03.5	06.3	03.2	CAD	02.4	02.8	02.8	02.5
CAD	03.4	02.7	02.9	03.1	PUO	02.2	03.1	00.9	02.3
Surgery	02.9	03.4	00.8	02.9	Surgery	01.9	02.3	05.1	02.2
PUO	02.3	02.1	03.3	02.3	HTN+CAD	01.0	02.4	00.9	01.3
EYE/ENT	02.4	01.4	01.7	02.0	COAD	01.1	01.2	02.3	01.2
HTN+DM+	00.7	01.2	00.0	00.8	HTN+DM+	00.3	00.4	00.0	00.3
CAD					CAD				
TOTAL	100.0	100.0	100.0	100.0	TOTAL	100.0	100.0	100.0	100.0

*HTN: Hypertension, DM: Diabetes Mellitus, APD: Acid Peptic Disease, MSD: Musculoskeletal Disorders, CAD: Coronary Artery Disease; PUO: Pyrexia of Unknown Origin; COAD: Chronic Obstructive Airway Disease. According to age.

HTN was most commonly reported disorders by elderly patients 80 years and above, in both males (49.0%) and females (51.6%). It was seen that proportion of HTN cases increased with age in both genders (38.5% to 49.0% in males and 39.9% to 51.6% in females) whereas that of HTN+DM decreased with age in both gender (13.8% to 3.8% in males and 14.3% to 7.0% in females) (Table 4).

During summer season, HTN was most commonly reported disorders by patients, in both males (49.7%) and females (46.8%). Similarly, in rainy season, HTN was most commonly reported disorders by patients, in both males (39.2%) and females (39.4%). During winter also, HTN was most commonly reported disorders by patients, in both males (31.5%) and females (30.5%).

DISCUSSION

According to WHO report, regardless of where people live, the overwhelming disease burden in older age comes from non-communicable diseases. These are often thought of as diseases of affluence and something that poorer countries will need to give attention to as they develop.[3] Certain diseases are more frequently seen among elderly population than that of the young generations like cardiovascular diseases, cancer, diabetes, diseases of musculoskeletal system, respiratory illness, genito-urinary tract diseases etc.

Age wise distribution of elderly in present study demonstrated that majority (65.1%) of elderly patients were in the age group of 60-69 years. Similar finding was seen in other studies where this percentage varied from 59.8% to 69.3%. [5-9] There were 28.2% patients in the age group 70-79 years as found in different studies where this percentage varied from 21.6% to 46.0% [5, 7, 10] Least (6.8%) patients were in the age group 80 years and above whereas this percentage varied from as low as 5.8% to 16.0% in different studies [5,7,10], demonstrating a very high variation of age group based elderly at different places.

More male patients reported than females in present study (51.9% vs. 48.1%) as seen in other studies conducted by Dey et al (65.2% vs 34.8%), Kishore et al (62.1% vs 37.9%), Mohapatra et al (50.3% vs 49.7%), Biswas et al (54.2% vs 45.8%), Sehgal et al (48.8% vs 51.1%), Reddy et al (66.0% vs 34.0%), Narayan and Chandrashekhar (65.9% vs 34.1%), and Cynthia (57.14% vs 42.86%) [5-12]. This observation is contrary to study conducted in

the community by Swami et al from same department in Chandigarh demonstrated a higher morbidity per person in females [13]. This indicates that even in the city like Chandigarh which is having very good socio economic status and high literacy rates, women need empowerment. To find out the reason we went into further detail by segregating the elderly into three age groups, 60-69 years, 70-79 years and ≥ 80 years. This demonstrated that male's predominance was observed among elderly aged 70 years and above where as in the age group of 60-69 years, female predominance was observed. Overall, male: female ratio observed was 1.1. Male to female ratio were 0.9, 1.7 and 1.3 in the age group 60-69 years, 70-79 years and ≥ 80 years, respectively. Thus it becomes important that to draw any inference of gender predominance, a very high precaution should be exercised.

Hypertension, diabetes and co-morbidity (HTN+DM) are common problems of geriatrics which are related to life style. Hypertension was present in 41.4% of the geriatric patients, which is comparable with the findings of Kishore et al in Dehradun and Prakash et al in Udaipur who found 41.4% and 48.0% of the elderly persons were hypertensive, respectively. [6, 14] In contrast, Mohapatra et al in Allahabad and Sehgal et al in Ghaziabad found low prevalence of hypertension as 18.0% and 18.6%, respectively. [7,9] whereas high prevalence was found by Biswas et al in Kolkota (65.4%) and Cynthia in Kurnool (61.2%) [8, 12], Hanger et al reported 43.6% prevalence of hypertension in their Christ Church study [15]. Almost half of the elderly population is hypertensive in India [13, 16, 17]. In present study, hypertension was reported as the most common morbidity in both males and females during all seasons, and found to be increasing with age. It is known that prevalence of hypertension increases with age in both sexes [18]. Similar findings were seen in present study. Globally, number of people with hypertension rose from 600 million in 1980 to 1 billion in 2008 because of population growth and ageing [19]. Diabetes mellitus was found in 7.6% of cases. It was more among the female (8.9%) than the male (6.5%) subjects.

Musculoskeletal disorders were found in only in 5.6% patients. Studies conducted by Sehgal et al in Ghaziabad [9], Kishore et al in Dehradun [6] and Srivastava et al in Agra [20] found much higher

results (30.2%, 36.8% and 37.2%, respectively) whereas Prakash et al at Udaipur reported only 14.6% MSD [14]. MSD were more among the female (6.7%) than the male (4.6%) subjects. It could be due to fact that postmenopausal women experience osteoporosis and degenerative changes owing to hormonal withdrawal. MSD were also found to be more common during winter (7.6%) as compare to summer (4.7%) and rainy (5.5%) season since cold weather conditions aggravates the musculoskeletal disorders.

Narayan et al in study at Mangalore found that majority of the elderly patients suffered from chronic obstructive pulmonary disease (20.7%) followed by ischaemic heart disease (19.6%), cataract & diminished vision (13.9%), arthritis (6.2%), diabetes mellitus (4.32%) [11]. Woo et al in South Korea [21] demonstrated in male and female geriatric patients, the prevalence of hypertension as 37.5% vs. 40.5%, Arthritis 15.6% vs. 24.4%, Diabetes Mellitus 14.9% vs. 23.6%, and APD (gastric ulcer) 13.1% vs. 14.3%. Lawrence et al in Nigeria [22] demonstrated among elderly patients, percentage of elderly having hypertension,

cataract and osteoarthritis was 40, 39.4 and 26.6 respectively.

Seasonal distribution shows that maximum morbidities were reported in rainy season followed by summers and then winters in present study. Similar findings were seen in the study done by Goel et al in Chandigarh from same department [23] and Kansal S et al at Uttar Pradesh. [24]

CONCLUSION

Old age makes the aged person vulnerable to various medical problems of insidious onset especially chronic degenerative disorders. The number of elderly in the community has increased with increase in life expectancy. This has ultimately increased the burden of non-communicable diseases in the society as a whole. Early diagnosis and regular treatment can cut down the prevalence of these diseases. Risk factors for these conditions are important targets for intervention at family and community level. There require optimum mix of preventive, promotive and curative services for care of geriatric population.

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