

## DISEASE BURDEN OF ELDERLY PATIENTS IN MEDICINE DEPARTMENT OF RURAL MEDICAL COLLEGE OF CENTRAL INDIA. A PROSPECTIVE OBSERVATIONAL STUDY.

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### Abstract-

**Background:** The elderly population is increasing rapidly globally, and presently, India has the second largest number of elderly persons. According to 2011 census geriatric people in India is about 8.2% of the total population, so it's essential to know the disease pattern of these people for efficient management of health demands & to plan better health care facilities for the elderly population in the society.

**Aims of the study:** To study the disease burden of various medical disorders in the elderly patients in Bundelkhand region of Sagar district, which is a rural Government Medical College of central India serving mainly rural population of this region.

**Materials and Methods:** This is a prospective, observational, cross sectional study. The study was conducted in the admitted patients as well as the patients attending Medicine OPD. The data were collected by history, detailed clinical examination & review of old records as per proforma.

**Results:** Total 250 patients were included in the study. out of which 132 (52.8%) patients were male & 118 (47.2%) were females. Mean age of our patients for male patients were  $69.73 \pm 6.37$  and for females  $66.44 \pm 6.59$ . Ratio of Male: Female in our study is 1.2:1. In our study majority of cases are of respiratory system (n= 114,45.6%), Cardio vascular (n=86,34.6%), Visual system (Cataract) (n=92,36.8%), Musculo skeletal (78,31.2%), hearing loss (n=83,33.3%), Nutritional (n=52, 20.8%) Neurological (n=49, 19.6%).

**Conclusion:** The study shows high incidence of chronic obstructive pulmonary disease, hypertension, coronary artery disease, Diabetes mellitus and pulmonary tuberculosis in the study. Majority of the patients have more than one comorbidity.

**Keywords:** Elderly, COPD, CAD, Hypertension, DM, Pulmonary TB,

### Introduction

As the standard of living is improving in developing countries like India, there is a huge burden of elderly people in the society. <sup>[1]</sup> The elderly population (aged 60 years or above) account for 7.4% of total population in 2001. In India, the geriatric age group above 60 years is expected to double from 7.7% in 2001 to 12.30% in 2025. <sup>[1,2]</sup>

The population of elderly in India is expected to increase to 173 million by 2026. By 2050; India will be the home to one out of every six of the world's older persons. <sup>[1,2]</sup>

Though as per the United Nations (UN), a proposed cutoff of 60+ years is considered as the older population, WHO defines the elderly as age more than 65 years. <sup>[3]</sup>

As India is getting advanced in healthcare facility, there is improvement in health status, and increase in longevity. <sup>[3]</sup> These are desirable indicators but along with this, there will be an increase of elderly population over the next few decades. This needs priority attention for economic and health care system to become senior citizen-friendly. Because as age advances there is progressive deteriorate in health status due to natural process of decay, there is

progressive deterioration of many organs and systems leading to increase in risk for various diseases. Most important diseases of geriatric age group are Musculo skeletal, CAD, Brain stroke, Hypertension, Respiratory, Dementia, Cataracts, hearing loss etc.

The speciality which deals with diseases of geriatric people is known as Geriatrics. <sup>[4]</sup> There is not enough research on diseases of elderly people in our region which is Bundelkhand region of Central India, that's why we are doing this study for catering better care to elderly.

### Aims and objectives of the study:

The primary aim of the study is to estimate the disease burden of various medical disorders in elderly patients in OPD as well as admitted in medicine wards of Govt. Medical College Sagar MP.

Secondary aim of the study - To assist in the planning of better health care facilities for elderly patients of Bundelkhand region of Sagar, according to the disease burden of the same in the society. This is a rural medical college serving mainly the rural people of this region.

### Material and Methods:

This is a Prospective, Observational, Cross sectional study design. The study was conducted on the elderly patients above the age of 60 years who attended the Medicine OPD as well as admitted in the Medicine wards of Govt. Medical College Sagar, after taking approval from the Institutional Ethical committee of BMC Sagar, for the same. Informed written consent were taken from all the participants of the study.

#### Inclusion criteria

- 1 Age should be at or above 60 yrs.
- 2 both the sexes were registered
- 3 Patient should be registered at BMC Sagar.
- 4 Those who have given informed consent for study.

#### Exclusion criteria

- 1 Patients not registered in OPD / IPD of BMC Sagar .
- 2 Age below 60 yrs.
- 3 Those patients who have not given informed consent for study.
- 4 Patients who might interfere with the study were excluded.

All the registered patients who fulfilled the above criteria were included in the study. Both the sexes were included. The data were obtained by history, clinical examination, review of old medical records of these patients, and data entered to pre decided proforma. Which included the socio economic and demographic details, presenting complaints, duration of illness, past significant history, any treatment history various available investigations and final diagnosis of the patient were recorded. Then Height, weight, BMI, Blood Pressure, and detailed systemic examination were done. Relevant investigations like CBC, FBS/ PPBS, Lipid profile, LFT, RFT, Urine routine & microscopic, ECG, X-Ray Chest were done. Special investigations like TMT, USG Abdomen, Echocardiography & Cardiac doppler, Endoscopy, CT Scan/ MRI scan were included where ever required.

Hypertension was diagnosed according to JNC VIII guidelines. Coronary artery disease was diagnosed by given history, electrocardiogram, TMT, Echocardiography and cardiac doppler or from coronary angiography reports if already available with the patients. Patients were labelled diabetic if they fulfilled the ADA criteria on blood sugar levels for diabetes. Diseases of Kidney were diagnosed according to Kidney foundation guidelines, or deranged renal functions, abnormalities in the urine test, USG diagnosis of renal medical disease etc. Liver disease was diagnosed by USG abdomen and deranged LFT reports. Pulmonary tuberculosis diagnosed on chest X-Ray as well as sputum examinations for AFB and CBNAAT and ADA for Tuberculosis. CVA was diagnosed by history, General clinical & Neurological examination and CT/MRI brain reports whenever available.

Then the master chart were prepared on Microsoft excel sheet and data were statistically analysed for descriptive study by using SPSS Software. P value of >0.05 is considered significant .

### Observations & Results:

In our study of 250 patients 132 were males (52.8%) and 118 patients were females (47.2%). mean age of patients were for males  $69.73 \pm 6.37$ , and for females  $66.44 \pm 6.59$ . In our study we found Male: Female ratio of 1.2:1

**Table 1:** Distribution of geriatric patients according to age.

Age in years	Male (number %)	Female (number %)	Total (number %)
60-69 yrs	60(51.5%)	57(48.8%)	117(46.8%)
79-79 yrs	50(49.5%)	53(50.5%)	105(42%)
80 and above	20(71.4%)	8(28.6%)	28(11.2%)
Total	132(52.8%)	118(47.2%)	250(100%)
Mean age	$69.73 \pm 6.37$	$66.44 \pm 6.59$	

In our study majority of the patients are in the age group of 60-69 years (n=117, 46.8%), followed by 70-79 years (n=105, 42%), and lowest in the age group of 80 years and above (n=28,11.2%).

**Table 2:** Distribution of Disease according to System Involvement.

S. No	Presenting Symptom	Male (N, %)	(Female N, %)	(Total N, %)
1	Respiratory system	80 (70.2%)	34 (29.8%)	114 (45.6%)
2	Cardiovascular	51 (59.3%)	35 (40.7%)	86 (34.4%)
3	Nutritional system	22 (42.3%)	30 (57.7%)	52 (20.8%)
4	Neurological	21 (42.9%)	28 (57.1%)	49 (19.6%)
5	Endocrine system	16 (47.1%)	18 (52.9%)	36 (17.2%)
6	Genitourinary	17 (45.9%)	20 (54.1%)	37 (14.8%)
7	Gastrointestinal	33 (53.2%)	29 (46.8%)	62 (24.8%)
8	Malignancies	21 (80.8%)	5 (19.2%)	26 (10.4%)
9	Poisonings	4 (1.6%)	0	4 (1.6%)
10	Musculo skeletal	37 (47.4%)	41 (52.6%)	78 (31.2%)
11	Vision / cataract	49 (53.3%)	43 (46.7%)	92 (36.8%)
13.	Hearing loss	46 (55.4%)	37 (44.6%)	83 (33.2%)
14	Psychiatric diseases	9 (45.0%)	11 (55.0%)	20 (8.0%)
15	Other	8 66.7	4 33.3	12 ( 4.8%)

In our study system involvement in terms of presenting symptom is Respiratory system (n=115, 45.6%) , followed by cardiovascular system (n=86, 34.4%) , other major causes are impaired vision due to cataract ( n=92, 36.8%) and hearing loss and deafness (n=83, 33.2%), diseases of joints and bones comprised of (n= 78,31.2%), nutritional in terms of anemia and other Vitamin deficiency states (n=52, 20.8%) , Endocrine ( n= 36,17.2%), Neurological (CVA) (N=49, 19.6%).

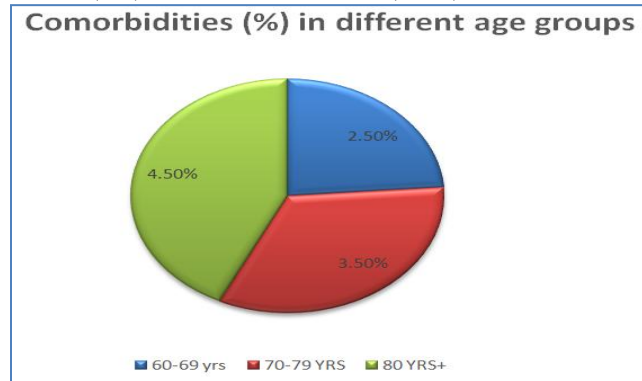
**Table 3:** Distribution of diseases according to duration of illness.

Duration of illness	Men	Women	Total
Less than 1 month	103 (54.5%)	86 (45.5%)	189 (75.6%)
1-3 months	12 ( 32.4%)	25 (67.6%)	37 (14.8%)
More than 6 months	17 (70.8%)	7 (29.2%)	24 ( 9.6%)
TOTAL	132 (52.8%)	118 (47.2%)	250 (100%)

$X^2 = 9.5$ , p value - 0.008

In our study duration of illness is less than one month in (n=189, 75.5%) cases. Duration of 1-3 months in (n=37, 14.8%) , and more than 6 months ( n=24, 9.6%) . The p value is 0.008, which is statistically not significant.

In our study we found among the various systems involved, these are the primary causes of health issues in geriatric patients COPD (41.5%), Hypertension (36%), CAD (25.5%), Diabetes mellitus (17.2%), Pulmonary Tuberculosis (10.5%), CCF (3%), CKD (4.5%), Bronchial asthma (3%), Chronic liver disease (2.5%).



**Figure 1:** comorbidities in the elderly age group .

In our study in 60-69 years age group we found around 2 comorbidities present, but after the age of 80 years and above four or more comorbidities were seen.

**Discussion** –The medical study of the aging process is called Gerontology and the study of diseases that afflict the elderly is Geriatrics. Old age is not a disease in itself, but the elderly are more vulnerable to long term diseases of insidious onset such as cardiovascular illness, CVA, cancers, diabetes, musculoskeletal, cataract , hearing loss and mental illnesses , so there should be regular follow up for diseases to prevent long term illness and complications. They have multiple symptoms due to decline in the functioning of various body functions. <sup>[5]</sup> Both perceived health and chronic illness are major elements of health status in elderly and there is growing evidence that older people are at risk for manifold comorbidities. <sup>[6]</sup>

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In our study majority of the patients are in the age group of 60-69 yrs (n=117,46.8%), followed by 70-79 yrs (n=105,42%), and lowest in the age group of 80 yrs and above (n=28,11.2%).

In our study system involvement in terms of presenting symptom is Respiratory system (n=114, 45.6%) , followed by cardiovascular system (n=86, 34.4%) , other major causes are impaired vision due to cataract ( n=92,36.8%) and hearing loss and deafness (n=83, 33.2%), diseases of joints and bones comprised of (n= 78,31.2%), nutritional in terms of anemia , Vitamin deficiency (n=52, 20.8%) ,

Endocrine mainly Diabetes mellitus ( n= 34, 13.6%), Neurological (CVA) (n=49, 19.6%).

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In our study we found out that among respiratory system cases , highest incidence of COPD (41.5%) , majority of the patients are males (31.5%) as compared to females( 10.5%). This was due to the bidi smokers which are very much prevalent among males in this rural area of central India . Majority of respiratory causes for females are repeated chest infections, and exposure to charcoal fumes during cooking in rural areas . The study done by Prakash R et al lower incidence of respiratory diseases (36%) was reported. <sup>[7]</sup>

In our study of cardiovascular system involvement, we found out Hypertension as second most common problem in the elderly population (36%) and among them also it was more common among males. which was consistent with other studies done by other authors .Our observation regarding Hypertension is similar with other studies done in different parts of India and world as 42.5% in Jaipur and 40.5% in Shimla, 53.8 % in United States and 48% in Canada. <sup>[8,9,10]</sup>

In some other studies they found a higher incidence of Hypertension in their study. In a study by Chadha et al <sup>[11]</sup> reported a prevalence rate of hypertension as 52.2% and 58.4% among males and females respectively.

The study done in South Africa found significantly high rates of hypertension as 77.3% , (male 74.4%, female 79.6%) among older adults who are 50 years and above . <sup>[12]</sup>

In our study we found risk of cardiovascular disease CAD (25.5%), incidence was higher in males (19.1%) as compared to females (6.4%) . This may be related to the higher incidence of Smoking bidi and tobacco chewing which is higher among males in this region.

We observed Diabetes mellitus in our study ( 17.2%) , they all were cases of type 2 diabetes mellitus. Only two cases were of Type 1 Diabetes mellitus . Major complications as diabetic retinopathy, neuropathy and CAD were seen.

We found pulmonary tuberculosis (10.5%), the incidence was almost similar among both males and females . The incidence of pulmonary tuberculosis was high due to poor socioeconomic conditions and poor hygiene in village areas. Overcrowding in small houses may be a cause. Smoking may also have some contribution to increased cases of PTB. Although we found out other cases of non tubercular pneumonia in the elderly (4%) like community acquired pneumonia and LRTI cases.

Among all the neurological cases, number of Intracerebral bleed and infarct are ( 6.5%) . The incidence is the similar in both the genders. This is consistent with the study done

by Kethy and Machnatty 1978, who reported the disorders of nervous system involvement is 8.5%.

Other disorders are also diagnosed in small number of cases like Congestive cardiac failure (3%), Bronchial asthma (3.2%), Cancers (10.6%) commonest is oral cancers in males and carcinoma breast in females. Diseases of liver and gall bladder (3.1%). The incidence was similar in these diseases among both the genders.

### Conclusion

This highlights the increasing trend of disease burden of geriatric health problems in India. To cope with this burden, unique preventive health care strategies specific to the elderly people need to be clearly formulated and tested. So that serious diseases of insidious onset and their complications can be prevented.

The elderly should be encouraged to undergo periodic medical checks at a clinic for routine appraisal of their health status, so as to allow early detection and treatment of their morbidities.

Study has demonstrated that the elderly present with multiple morbidities which they often attribute to ageing. Elderly need help and support of the medical fraternity. Geriatric assessment should be done regularly. Present study highlighted that most of the elderly people don't go for regular health check-ups. So awareness among the elderly population should be created for regular medical check ups to ensure prevention and early detection of diseases to prevent the complications and disease burden.

Limitation of study -Some limitations are noted in this study are, we have taken our study population from hospital so that there may be higher prevalence of diseases, as well as more comorbid conditions, as they are not actual representative sample from the community. We need more studies at the community level to understand the issue better.

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