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Original Research Article

PREVALENCE OF COMORBIDITIES AMONG ELDERLY HOSPITALISED PATIENTS IN A TERTIARY CARE CENTRE OF ODISHA

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Abstract

Background: Older adults generally have multiple medical problems, making it difficult to evaluate and treat elderly patients in a single medical issue. An increase in longevity and decrease in mortality. Even in healthy older adults and those with a single clinically manifest disease are likely to have subclinical pathology in multiple organ systems. Therefore, we aimed to study prevalence of co-morbidities in hospitalized elderly patients. **Materials and Methods:** This is a Hospital based cross-sectional study. All elderly patients aged more than 60 years admitted to the hospital for various causes were our study subjects. Detailed clinical history and thorough physical examination necessary laboratory test was done to reach a clinical diagnosis. Previous medical records were also checked for evaluation. Patients with newly diagnosed hypertension, their blood pressure were rechecked within a few minutes in resting condition in both arms with validated sphygmomanometer. **Result:** This is a cross sectional observational study conducting on 295 elderly patients who have one or more than one particular diseases. The average of their age was 77 years (± 7.2 SD), 155 (52.54%) were female and 140 (47.45%) were males in. Most of the valid cases for elderly patients were diabetes mellitus 160 (53.3%), Hypertension 145 (48.3%), dyslipidaemia 82 (27.79%), neurological diseases 75(25.4%), cardiovascular diseases 45 (15.2%), lung diseases 33 (11%), renal 22 (7.3%), rheumatic diseases 18 (6%), cancer 5 (1.7%). Most of the cases admitted were having a single morbidity with 73(47.09%) elderly female patients and elderly 58 (41.42%) elderly male while 44 (31.42%) male and 48 (30.96%) female have two concurrent morbidities. It was also seen that 38 (27.1%) males and 34(21.9%) females had 3 or more comorbidities out of which only 2 (1.29%) elderly females were having five comorbidities. **Conclusion:** Most prevalent comorbidity among the elderly is Diabetes Mellitus followed by Hypertension with average of their age of about 77 years. About 36% (106) elderly patients were having two diseases or more and up to five concurrent chronic diseases. Similarly, women were more likely to have a multimorbidity as compared to men among the elderly. The prevalence of multimorbidity among elderly males and females were found to be almost equal in numbers.

INTRODUCTION

India is experiencing unprecedented changes in demographic and social structure in recent decades.[1] India is also experiencing an epidemiological transition which witnesses a rising in non-communicable diseases especially due to lifestyle changes.[2] Physiological changes occur in human body with increasing age contributing to multiple health problems. Older adults generally have multiple medical problems, making it difficult to evaluate and treat elderly patients in a single medical issue.[3]

In a study in India, among the medical beneficiaries of aged 65 years or older had four or more chronic conditions and the proportion was increases to 31.4% among those persons 85 years or older.[4] Most developing nations are inadequately equipped with the multi-morbidity challenge; as a result, a study conducted in Vietnam.[5] An increase in longevity and

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decrease in mortality. leads to an increase the multiple co-morbid conditions. [6,7]

Even in healthy older adults and those with a single clinically manifest disease are likely to have subclinical pathology in multiple organ systems.[8] Patients suffering from these chronic conditions have higher level of morbidity, poor physical functioning and quality of life, a greater chance of persistent depression, and lower levels of social wellbeing.[9,10] About 23.3% comorbidity prevalence has been observed in India in the previous study conducted in 2017, where Kerala showed the highest prevalence of multimorbidity with 42%, followed by Punjab (36%), Maharashtra (24%) & West Bengal (23%).[11]

The rich older adults in India were more likely to have poor health due to long-term comorbidity conditions.[12] Common comorbidities in elderly are Obesity, Hypertension, Diabetics mellitus, Dyslipidemia, ischemic heart disease, hypothyroidism, malignancies, chronic obstructive pulmonary diseases, cerebrovascular diseases, osteoporosis, osteo arthritis, rheumatoid arthritis.

Justification of the Study

This study is to find out common comorbidities among the elderly. Necessary steps may be taken to prevent and timely manage those conditions, so that our elderly population lead a healthy life.

Objective

To study the prevalence of comorbidities among hospitalized elderly patients aged above 60 years in a tertiary care center.

MATERIALS AND METHODS

All elderly patients aged more than 60 years admitted to the hospital for various causes were our study subjects.

Type of study: Hospital based cross-sectional study.
Place of study: Indoor patients at DEPT. OF GENERAL MEDICINE, PGIMER AND CAPITAL HOSPITAL, BHUBANESWAR, ODISHA, INDIA
Period of study: From January 2023 to December 2023 for a period of one year.
Study population: All consecutive hospitalized patients aged 60 years or more.

Selection Criteria
Inclusion Criteria
1. All hospitalized patients aged 60 years and above.
2. Those giving consent to participate.

Exclusion Criteria
1. Persons aged below 60 years.
2. Outdoor patients.
3. All patients or attendants not giving consent for study.

Method of Study

An informed consent was obtained from the patients and subsequently were interviewed. Detailed clinical history and thorough physical examination necessary laboratory test were done to reach a clinical diagnosis. Previous medical records were also checked for evaluation. Patients with newly diagnosed hypertension, their blood pressure was rechecked within a few minutes in resting condition in both arms with validated sphygmomanometer. Diabetic patients were included who have history of diabetes, on drug and in new cases with FBS or PPBS after 75 gm glucose load or HbA1c level either alone or in combined parameter compatible with diabetes. Ischemic heart disease patients were selected by compatible clinical history, present or past ECG evidence and by cardiac biomarker. All routine investigations were done. Other diseases were diagnosed with compatible clinical history, physical examination and necessary laboratory investigations where needed. All the information was recorded in fixed protocol. All data was collected in a predesigned proforma.

Statistical Analysis

Statistical analysis of the data was done using the Statistical Software SPSS v.26 and appropriate parameters were analyzed.

RESULTS
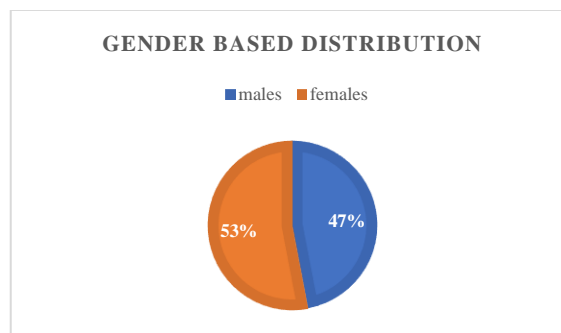
GENDER BASED DISTRIBUTION

This is a cross sectional observational study conducting on 295 elderly patients who have one or more than one particular diseases. The average of their age was 77 years (± 7.2 SD), 155 (52.54%) were female and 140 (47.45%) were males in [Table 1].

Most of the comorbidities for elderly patients were hypertension with 145 (48.3%), diabetes mellitus 160 (53.3%) dyslipidemia 82(27.7%), neurological diseases 75 (25.4%), cardiovascular diseases 45 (15.2%), lung diseases 33 (11%), renal 22 (7.3%), rheumatic diseases 18 (6%), cancer 5 (1.7%), in [Table 2].

Most of the comorbidities for elderly male patients were diabetes mellitus 93 (66.42%), hypertension 81 (57.85%), Dyslipidemia 33(23.57%), neurological diseases 48 (34.28%) cardiovascular diseases 27 (19.2%), lung diseases 13 (9.28%), renal 14 (10%), rheumatic diseases 7 (5.0%), cancer 3 (2.14%), in [Table 3].

Most of the comorbidities for elderly patients were diabetes mellitus 67 (43.22%), hypertension with 64(41.29%), Dyslipidemia 49(31.61%), neurological diseases 37 (23.8%) cardiovascular diseases 18 (11.61%), lung diseases 20 (12.9%), renal 8 (5.1%), rheumatic diseases 11 (7.09%), cancer 2 (1.29%), in [Table 3].

Most of the cases admitted were having a single morbidity with 73(47.09%) elderly female patients and elderly 58 (41.42%) elderly male while 44 (31.42%) male and 48 (30.96%) female have two concurrent morbidities. It was also seen 34 (24.28%) males and 29 (18.7%) females have three morbidities while 4 (2.8%) of males and 3 (1.9%) of females having four concurrent morbidities. Only 2 (1.29%) elderly females were having five comorbidities.
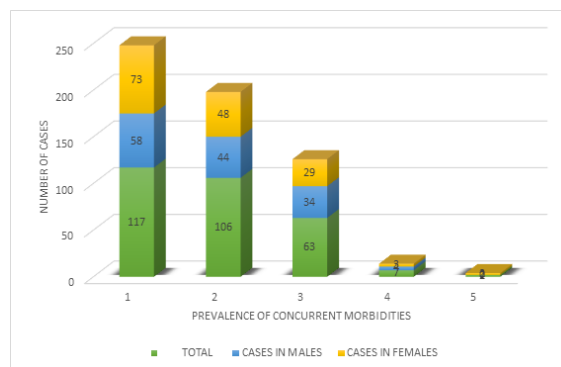

Table 1: Distribution of Age and Gender

Age (year)	60-79 years	>/= 80years	Total
Female	102 (65.80%)	53(34.19%)	155
Male	113 (80.71%)	27 (19.28%)	140
Total	215	80	295

Table 2: Distribution of Comorbidities

Comorbidities	Total n= 295	Percentage
Diabetes Mellitus	160	53.3
Hypertension	145	48.3
Dyslipidemia	82	27.79
Neurological Disease	75	25.42
Cardiovascular Disease	45	15.25
Pulmonary Disease	33	11.18
Renal Disease	22	7.3
Rheumatic Disease	18	6.1
Cancer	5	1.7

Table 3: Distribution of Comorbidities

Comorbidities	MALE Frequency	Total(n=140) Percentage	FEMALE Frequency	Total(n=155) Percentage
Diabetes Mellitus	93	66.42	67	43.22
Hypertension	81	57.85	64	41.29
Dyslipidemia	33	23.57	49	31.61
Neurological Disease	48	34.28	37	23.8
Cardiovascular Disease	27	19.2	18	11.61
Pulmonary Disease	13	9.28	20	12.9
Renal Disease	14	10	8	5.1
Rheumatic Disease	7	5.0	11	7.09
Cancer	3	2.14	2	1.29

Table 4: Frequencies of concurrent morbidities

No Of Concurrent Diseases	Total (n=295)	Cases in males (n= 140)	Cases in females (n= 155)
1	117 (39.66%)	58(41.42%)	73(47.09%)
2	106 (35.93%)	44(31.42%)	48(30.96%)
3	63 (21.35%)	34(24.28	29(18.7%)
4	7 (2.3%)	4(2.8%)	3(1.9%)
5	2 (0.67%)	0	2 (1.29%)

DISCUSSION

This Hospital based cross sectional study conducted on a total 295 elderly patients who have one or more than one particular diseases with mean age 77 years (± 7.2 SD) in which 155 (52.54%) were female and 140 (47.45%) were males. It shows total 215 (72.88%) were within age 60-79 years and 80 (27.11%) were above 80 years which is comparable with the study done by Sara et al in Bangladesh.[13]

The prevalence of multimorbidity among elderly males and females were found to be almost equal in numbers which is similar to the study done by Gupta P. et al.[14]

This study found that the major diseases among the hospitalized elderly population of Eastern Odisha were DM followed by hypertension, Dyslipidaemia, Neurological disease in the form of Stroke and Cardiovascular disease mostly Coronary Artery Disease. Similar results were also found in several other studies done in foreign countries.[15-17]

Our study also shows that comorbidities among elderly is highly prevalent with highest numbers being diabetes with dyslipidaemia followed by hypertension with dyslipidaemia. The results show how changes in prevalence by age derive from diverse prevalence patterns among patients who differ in their comorbidities. For instance, by age 65 patients are more likely to have both hypertension

and dyslipidaemia than either condition alone. The results make apparent that approaches to improve the health of Indian should be comprehensive, targeting multiple conditions. Among combinations of systems, the respiratory and cardiac combination is of particular concern because of a synergistic negative effect.[18]

Although not explored in this article, creating more homogenous subgroups of patients may help to identify poorly managed patients. By examining factors such as recommended screening tests, medication adherence, emergency department use, preventable hospitalizations, and office visit patterns among patients with similar conditions, a subgroup of especially poorly managed individuals might be recognized.[19]

The study results illustrate the increased prevalence of patients with multiple chronic conditions that is projected to occur with the increasing age. Aging populations challenge existing health care systems and will increasingly do so in the future.[20] The broader healthcare implications of an aging population are harder to anticipate. New technologies and treatments may partially reduce the consequences of morbidity.[21] Recent evidence suggests illness burden in many developed countries has been decreasing as evidenced by self-reported ratings of health status, as well as reports of activities of daily living and instrumental activities of daily living among the elderly.[22] With longer average life spans an increasing proportion of the population will live for greater years with morbidities. Complications from morbidities preceding death often requires acute care that comes with exceptional costs. A recent review concluded that in recent years this critical phase may be shrinking.[23] The pattern in the future may be longer years of life spent with chronic diseases but with lower rates of acute events, and a shorter acute period near death. The extent this pattern unfolds has substantial health care consequences as the most rapid shifts toward older populations are still ahead.[24] Recent articles have questioned if the current evidence is adequate to guide the management of the most complex patients.[25] The results, by quantifying the prevalence of comorbid conditions at specific ages, offer a starting point toward characterizing medically complex patients beyond enumerating the number of morbidities they might have. The characterization could easily be extended to include other information for the same patients such as rates of hospitalizations and emergency department visits.[26]

Limitations of the Study

As a hospital-based study is very challenging to explain to the respondents and their family members about the reason behind this study and the underlying benefit to them. In addition, the study was limited to only one Tertiary Care Centre. This research can be extended to other districts in future to provide a probable solution to the problems faced by the elderly that can be useful for the decision-makers for policy implications.

CONCLUSION

Most prevalent comorbidity among the elderly is Diabetes Mellitus followed by Hypertension with average of their age of about 77 years. About 36% (106) elderly patients were having two diseases or more and up to five concurrent chronic diseases. As India paves its way to being a developed country, the population keeps on shifting to an aged one with declining birth and death rates with advent of advanced care in medical science. Nevertheless, newer challenges keep on emerging to combat this aging population with a myriad comorbidity. Our target should always be identifying and treating it at an earlier stage so as to provide them a good quality of life and reduce the burden on our existing health infrastructure.

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