

Original research article

A Cross-Sectional Study of Morbidity Pattern of Elderly in a Tertiary Care Centre

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Abstract

Background: -Aging is a biological process often accompanied by debility, disease and death. In India, anyone who is above 60 years is considered as geriatric patients whereas in western world attainment of age above 65 years is considered as aged people. Elderly patients are frail with reduced physiological capacity and often suffer from multiple co-morbidities constituting this group the most vulnerable and high-risk groups in terms of health and their health seeking behaviour. Even acute illness in elderly manifests in a non-specific way.

Aims and objective: - The objective of study aims to find out morbidity pattern among elderly population aged 60 years and above.

Methods and material: - A cross-sectional observational study was conducted on 200 elderly patients admitted in general medicine department or attending general medicine OPD. The study duration was of one year. Patients above 60 years of age were selected as per inclusion and exclusion criteria and were subjected for detailed history, clinical examination and investigations.

Result - We included 200 cases for this study. Age ranges from 60 to 91 with male to female ratio 1.56. Maximum cases were in the age group of 70-79 followed by 60-69, 80-89 and >90. Most common symptom was weakness (48.5%) followed by dyspnoea (36.5%), body ache/joint pain (27.5%), fever

(24%), loss of appetite (20%) etc. Most common diagnosis was hypertension (50.5%) followed by diabetes mellitus (38.5%), electrolyte imbalance (27%), anaemia (25.5%), COPD (23%), renal failure (15.5%), CAD (13%), LRTI (12%), osteoarthritis (11.5%), BPH (10%), CHF (8.5%), etc. Maximum patients were having 3 morbidity (30.5%) followed by 2(26%), 4 or more than 4(24%) and 1(19.5%).

Conclusion: - Geriatric population is rapidly increasing with multimorbidity in majority. Non-communicable disease is highly prevalent but communicable disease remains an important cause of admission.

Keywords: elderly, morbidity pattern, geriatric

Introduction

Aging is a biological process often accompanied by debility, disease and death. Longevity has dramatically improved in last few decades mainly due to improvement in health care system. In India, anyone who is above 60 years is considered as geriatric patients whereas in western world, attainment of age above 65 years are considered as aged people ^[1]. Swash Michael has categorized elderly sub population in three groups-the “young old

“(60-74 years), the “old” (75-85) and the “old-old” (above 85). ^[2] In the UK, the total population grew by 11% over the last 30 years, but the number of people aged over 65 years rose by 24%.^[3] It has been estimated that the demographic transition in many third world countries will take place in much short span of time. In India it was 19 million in 1950, 90 million in 2006 and will be 330 million in 2050, thus showing an increase of 270%. Population of age more than 80 years is showing more increment. It was 0.8 million in 1950, 9 million in 2006 which are projected to be 53 million in 2050 i.e., a rise of almost 500%.^[4] These data confer India as an ageing nation contributing world’s 13% of elderly population.^[5]

Elderly patients are frail with reduced physiological capacity and often suffer from multiple co-morbidities constituting this group the most vulnerable and high-risk groups in terms of health and their health seeking behaviour. Even acute illness in elderly manifests in a non-specific way such as delirium, falls, loss of mobility and day to day functioning. ^[3] For the first time a study was conducted by LASI(longitudinal Ageing Study in India) and released by Union Minister and Health Welfare in 2020 found two in every three senior citizens suffers from chronic disease .This study further observed that the percentage of people without morbidity consistently declined with age . The most common chronic conditions in elderly are hypertension affecting more than 50% cases specifically in urban setup followed by hyperlipidemia, IHD, arthritis, DM, CHF,CKD, depression, COPD, Alzheimer disease, atrial fibrillation, cancer, osteoporosis, asthma and stroke respectively. ^[6] The most common cause of hospitalisation in elderly is CHF followed by pneumonia, stroke and cancer respectively. ^[7] So, this is the need of time to address medical and socioeconomic problems of elderly patients as their life expectancy, quality of life and even productivity can be improved by focussed and exhaustive assessment of geriatric morbidity factors. Secondly appropriate counselling, knowledge about morbidities and preventive therapies can diminish the health risk, delay the onset of disease and can reduce the cost of treating disease in the elderly population.

Aims and objective: - The objective of study aims to find out morbidity pattern of elderly population aged 60 years and above.

Methods and material:-

- Study design: - A cross-sectional observational study was conducted on elderly patients to know morbidity pattern admitted in general medicine department or attending general medicine OPD at IGIMS, Patna

- **Materials and method:** - A cross-sectional observational study was conducted on 200 elderly patients admitted in general medicine ward or attending general medicine OPD at our tertiary hospital. The study duration was of one year. Those patients above 60 years, consenting to participate and were willing to undergo protocolised investigations were included. Those not willing were excluded. These patients were subjected for detailed history, clinical examination and investigations such as CBC, BSR, LFT, KFT, lipid profile, TFT, ECG and Urine. Other investigations were done as per clinical diagnosis.
- **Statistical analysis** – The primary objective of this study was to assess the morbidity pattern in elderly patients. Descriptive statistics were obtained from data collected from history, examinations and laboratory investigations. Numbers and percentages were enumerated for all categorical variables such as clinical findings, haematological investigations and bone marrow findings.

Result:

We included 200 cases for this study. Collected data analysed and results are summarised as follows:-

Age and sex-wise distribution: - Age ranges from 60 to 91 with male to female ratio 1.56. Maximum cases were in the age group of 70-79 followed by 60-69, 80-89 and >90. (Table – 1)

Table 1: (Age and sex distribution)

Age range	Frequency (%)	Male (%)	Female (%)
60-69	72 (36%)	40(20%)	32(16%)
70-79	78(39%)	51(25.5%)	27(13.5%)
80-89	49(24.5%)	30(15%)	19(9.5%)
>90	1(0.5%)	1(0.5%)	00

Symptom: - Most common symptom was weakness followed by dyspnoea, body ache/joint pain, fever, loss of appetite etc. (Table -2)

Table 2: Symptom of patients

Symptom	Frequency (%)	Symptom	Frequency (%)
Weakness	97(48.5%)	Swelling of lower limb	11(5.5%)
Dyspnoea	73(36.5%)	Vomiting	10(5%)
Bodyache/joint pain	55(27.5%)	Abdominal pain	8(4%)
Fever	48(24%)	Tremor	7(3.5%)
Loss of appetite	40(20%)	Loose motion	5(2.5%)
Cough	32(16%)	Chest pain	3(1.5%)
Altered sensorium	22(11%)	Seizure	3(1.5%)

Diagnosis: - Most common diagnosis was hypertension followed by diabetes mellitus, electrolyte imbalance, anemia, COPD (chronic obstructive lung disease), renal failure, CAD (coronary artery disease), LRTI (lower respiratory tract infection, osteoarthritis, BPH (Benign prostatic enlargement), CHF (chronic heart failure) etc. (Table-3)

Table 3: Distribution of specific disease

Diagnosis	Frequency (%)	Diagnosis	Frequency (%)
Hypertension	101(50.50%)	Vertebral fracture	6(3%)
Diabetes mellitus	77(38.50%)	ILD	5(2.50%)
Electrolyte imbalance	54(27%)	Dementia	4(2%)
Anemia	51(25.50%)	Malaria	4(2%)
COPD	46(23%)	Amoebiasis	4(2%)
Renal failure	31(15.50%)	CTD	4(2%)
CAD	26(13%)	CLD	3(1.50%)
LRTI	24(12%)	Hypoglycemia	3(1.50%)
Osteoarthritis	23(11.50%)	Seizure	3(1.50%)
BPH	20(10%)	Enteric fever	3(1.50%)
CHF	17(8.50%)	Dyslipidemia	3(1.50%)
Tuberculosis	16(8%)	Covid	3(1.50%)
Hypothyroidism	16(8%)	Mucormycosis	3(1.50%)
CVA	16(8%)	Dengue	2(1%)
Fracture neck femur	15(7.50%)	HCC	2(1%)
Sepsis	14(7%)	Carcinoma gall bladder	2(1%)
UTI	11(5.50%)	Brain tumor	1(00.50%)
Cholelithiasis	10(5%)	PPI	1(00.50%)
AF	8(4%)	APCKD	1(00.50%)
Gastritis	7(3.50%)	CMPD	1(00.50%)
Meningitis	7(3.50%)	Carcinoma oesophagus	1(00.50%)
Neuropathy	7(3.50%)	MSA	1(00.50%)
DVT	7(3.50%)		

Number of morbidity: -Maximum patients were having 3morbidity followed by 2, 4 or more than 4 and 1. (Table 4)

Table 4: (Number of morbidity)

Number of morbidity	Frequency (%)
1	39(19.50%)
2	52(26%)
3	61(30.50%)
4 or >4	48(24%)

Discussion:

The greatest achievement of 20th century is the comprehensive health care facilities for all which has resulted in increased longevity. In India we face multifaceted problems in formulating specific health care policies for senior citizens. The initial and foremost constraint is the available health infrastructure. Secondly, epidemiological transition of communicable and non communicable disease needs to be explored. So, there is a need to highlight geriatric health problems and focus the planning and management to bring about an improvement in

their quality of life. We conducted a study on 200 elderly patients selected as per inclusion and exclusion criteria. The patients were subjected to a thorough clinical examination and relevant laboratory investigation. In present study, age ranges from 60 to 91 with M: F ratio 1.56. Maximum cases were in the age group of 70-79 followed by 60-69. Our observation was in contrast with previous many studies conducted by different researchers. Karmakar N et. al. conducted study on 260 patients in a rural population of Tripura and found 52.7% of elderly population in 60-70 years of age followed by 70-80 age range. Females outnumbered males with a percentage of 51.9 % vs. 48.1%).^[8] Similar findings were observed by George LS et. al. with 37% in the age range of 65-69 years and majority were elderly women contributing 58%.^[9] Pandita AK et. al. also found maximum geriatric patients in same age group of 60-69 years i.e., 79.23% followed by 14.03% in 70-79 years age group but males outnumbered females with 60.58% and 39.42% cases respectively.^[10]

Kumar V et. al. also observed maximum number of patients in the age group of 60-69 contributing 46.8% which was closely followed by 70-79(42.00%) .

Males were 52.8% and females were 47.2%.^[11] . In present study, trend of decreasing clustering of geriatric patients in the lower limit of age group with maximum number of patients in 70-79 years has been observed. This probably suggests continuous increase in longevity.

In our study most common symptom was weakness followed by dyspnoea, bodyache/joint pain, fever, loss of appetite etc. Karmakar N et.al. reported nonspecific generalized weakness as the most common (62.7%) morbidity, followed by gastrointestinal problems (56%). Musculoskeletal problems (low back pain, joint pain, osteoarthritis) were in 45%.^[8] Pandita AK et. al. reported common complaint as joint pain(78.65%), hard of hearing (73.65%), constipation(72.22%), abdominal pain(70%), poor eye sight (67.88%), headache (60.96%) and shortness of breath 59.03%.^[10] The difference in clinical presentation in our study and others is probably because our study was done at tertiary care centre whereas other study was done in community setup.

In our study the most common morbidity pattern observed was hypertension followed by infective pathology, diabetes mellitus, electrolyte imbalance, anaemia, COPD and so on. We observed hypertension in about half of the study population i.e. 51.5% of cases which was comparable with the observation done by Kishore et al^[12] at Dehradun (41.4%) , Sharma MK et al^[13]at Chandigarh (41.4%) and Prakash et al^[14]at Udaipur(48%). In contrast to this Pandita AK et. al.^[10] and George LS et. al.^[9] observed arthritis/ orthopedic as most common morbidity with 49.61% and 50.5% respectively. They observed significantly low incidence of hypertension 11.39% and 20.9%. Hypertension is now greeted as life style disease with almost equal number in rural and urban setup. Few researchers found even higher prevalence of hypertension such as Biswas et. al.^[15] in Kolkota (65.4%) and Cynthia^[16] in Kurnool (61.2%) DM in the present study was documented in 38.5% where as it was 21.15%, in the study done by Pandita A K et al.^[10]and 18.7% by Jadav PA and Bavarva NR at Vadodara, Gujarat .^[17] George LS et. al. observed diabetes in 17.4% with majority being women.^[9] Narayan et. al.^[18] in their study at Mangalore found diabetes mellitus in a small group of people (4.32%) .On the contrary, he found chronic obstructive pulmonary disease in 20.7% followed by ischemic heart disease in 19.6% which was comparable with ours observation (COPD in 23% and CAD in 13%). Pandita AK et. el. reported COPD in 25% cases.^[10]

In a meta- analysis of 21 studies conducted over 30 years reported combinations such as HT, DM, and stroke are most common multimorbidity. Cardiovascular and metabolic disorders are

more common among older male whereas anxiety, depression, somatoform disorder and pain related morbidity were more often encountered in female patients. ^[19] The observation done by LASI found cardiovascular disease and chronic hypertension are prominent morbid conditions above 45 years of age. The prevalence of these disease increases to 37% and 35% respectively among those around 70-75 years of age. ^[6]

In our study infective pathology was noted in 45.5% mainly contributed by LRTI in 12%, tuberculosis in 8%, sepsis in 7%, UTI in 5.5% etc. 27% patients were having electrolyte imbalance. These high percentages of infection and electrolyte imbalance were important cause of emergency admission. Other important diseases were renal failure (15.5%), osteoarthritis (11.5%), BPH (10%), CHF (8.5%), hypothyroidism (8%) etc.

In our study, maximum patients (30.5%) were having 3 morbidities followed by 2 in 26% cases. Significant number of cases had 4 or more than 4 morbidities. Only 19.5% had single morbidity. We can infer that multimorbidity which is considered a norm in developed country is highly prevalent in developing country also. Karmakar N et. al. reported 38.8% elderly suffering from 2 morbidities and 8.1% of study population had 4 and more morbidities. ^[8] George LS et. al. reported average morbidity of 3 per person. Females (58.9%) had more morbidities than men (41.1%). ^[9] In a meta-analysis of 21 studies conducted over 30 years, multimorbidity was reported in 3.5% -98.5% of primary care users and in 13-72% of general population. ^[19]

Limitation:

Present study was done in a tertiary care centre where only referred patient were included. So, this may not be reflecting morbidity pattern of general population. Secondly, comprehensive geriatric assessment / multispecialty assessment of all patients was not done leading to meagre documentation of asymptomatic disease.

Conclusion:

Geriatric population is rapidly increasing with multimorbidity in majority. Noncommunicable disease is highly prevalent but communicable disease remains an important cause of admission. Multimorbidity is currently managed in a fragmented way leading to multiple visits, over prescription, and increased cost of care. So, there is a great need of implementation of health policies for senior citizen with dedicated geriatric health clinics involving multispecialty at a single centre.

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