Morbidity profile of chronic diseases in geriatric patients

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Abstract

A cross sectional study was conducted in the Medical wards of Services Hospital Lahore from 17th May 2017 to 12th June 2017 to study the morbidity profile of chronic diseases in geriatric patients. Semi-structured questionnaires were used which were translated into the local language. In all 601 morbidities were documented by 171 subjects, with mean number of morbidities per person as 3.51±1.69. The most prevalent disease observed was Hypertension 105(61.4%), 42(50.6%) in males and 63(71.6%) in females. The 2nd most common was anaemia 80(46.8%), 20(24.1%) in males and 60(68.2%) in females. The 3rd most common morbidity was diabetes mellitus 59(34.5%), 20(24.1%) males and 39(44.3%) females.

This study has assisted in understanding the patterns of health problems among the elderly, which will help to address the prevailing geriatric morbid conditions and application of appropriate interventions thereafter. Thus, it will help active ageing to be maximally functional in our society.

Keywords: Geriatric, Morbidity, Chronic diseases.

Introduction

Ageing, a universal process is regarded as a normal, inevitable biological phenomenon. Morbidity refers to departure from a state of physical or psychological well-being resulting from disease, illness, injury or sickness especially where the affected individual is aware of his or her condition. According to the World Health Organization (WHO) morbidity could be measured in terms of number of persons who were ill, illnesses these persons experienced and the duration of these illnesses.[1] The geriatric population is defined as population aged 60 years and above. By the year 2025, the world will host 1.2 billion people aged 60 and over and rising to 1.9 billion in 2050.[2] A chronic disease, as defined by the U.S National Center for Health Statistics, is a disease lasting 3 months or longer.[3] Majority of the geriatric group has one or more chronic diseases like diabetes mellitus, hypertension and heart diseases.

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International and regional studies have been conducted to bring some common chronic diseases in geriatric patients into limelight. A study conducted in Civil Hospital Karachi showed that most prevalent morbidities were cerebrovascular accidents (13.6%), chronic liver diseases (7.7%) and hernias (7.7%).[4] A similar study in India revealed that the most common disorders reported among elderly were eye diseases (51.7%) followed by endocrine, nutritional and metabolic diseases (38.4%). Diseases of circulatory system (33.1%), disorders of oral cavity (32.3%), musculoskeletal disorders (30.2%) and diseases of respiratory and digestive system were reported in about 10% of the geriatric people.[5]

According to a previous conducted study in Saudi Arabia, the most prevalent of these is hypertension (59.1%) followed by diabetes mellitus (57.3%), stroke (34.9%), dementia (28.5%), osteoarthritis (24.2%), Alzheimer (21.4%), osteoporosis (17.2%) and ischaemic heart diseases (16.7%).[6]

Objectives of this study were to enumerate the common chronic diseases in the geriatric population. We intended to compare the prevalence of various morbidities amongst males and females and to assess the morbidities encountered by them along the lines of other variables like marital status, literacy and age.

Such assessment of the morbidity profile amongst elderly will highlight some very common geriatric diseases in Pakistan. It will help to modify our lifestyles according to the need of time to prevent the development of these diseases in the future and implement interventions in early life. As the incidence of geriatric population is rising, this study will help us adopt a holistic approach. This means not only catering to their health problems but also uplifting their psychological and social wellbeing and providing them with a good nutritional support.

Methods and Materials

This cross-sectional study was conducted from 17th May 2017 to 12th June 2017 with prior approval from the ethical committee and the institutional review board of the Services Hospital Lahore, a renowned tertiary care teaching hospital. Sample was estimated using WHO sample size software[7] by

formula of estimation of population proportion at confidence level 95% and anticipated population proportion 50% with relative precision 15%. Using non-probability convenience sampling technique, 171 subjects were enrolled in this study. Patients of 60 years and above were included whereas patients who were not well oriented or unable to comprehend our questions were excluded.

A semi structured questionnaire was designed with open ended and close ended questions of multiple choices to collect data. It was assessed by the Community Medicine's physicians and pre-tested before its approval. It covered patients' socio demographic variables, presenting complaints, complete general and systemic examination and the associated laboratory investigations. Written informed consent was obtained from all the respondents. Personal interview of the patient was undertaken by translating the questionnaire into the local language. Patients files were meticulously examined as definitive diagnosis and history of chronic conditions given therein were taken as morbid conditions.

SPSS computer software version 23.0 was used for the entry, compilation and analysis of data. For qualitative variables, frequency and percentage distribution tables were generated. Statistical test such as chi-square test was applied at 5% level of significance for qualitative data.

Results

Of the 171 study subjects, 88 (51%) were females and 83 (49%) were males. Out of 83 males, 21 were labourers, 8 were businessmen, 9 were government servants, 6 were farmers and others belonged to miscellaneous professions. Out of 88 females, 85 were housewives and 3 were working women. A total of 601 morbidities were reported by 171 subjects in this study, 349 (58.1%) in females and 252 (41.9%) in males.

Table-1 reflects mean number of morbidities according to socio-demographic variables. Mean number of morbidities per person is 3.51±1.69. Higher mean was noticed in females 3.97±1.82 than in males 3.02±1.39. Whereas, highest mean was observed in the age group >80years i.e. 4.17±1.65, and the least in the age group 60-64 i.e. 3.28±1.53. Moreover, greater mean was seen in literate 3.53±1.75 compared to illiterate i.e. 3.49±1.62. Marital status based diverse means were also recorded for e.g. 4.40±2.01 in widowed and 3.14±1.07 in singles.

Table-2 displays the morbidities in decreasing order of magnitude observed in the geriatric population stratified by gender. Hypertension had the highest prevalence in 105 (61.4%) which was statistically significant p<0.005, comprising of higher number of females 63 (71.6%) than

Table-1: Frequency of morbidities according to socio-demographic characteristics and their mean with standard deviation.

Socio-demographic Variables	Number of patients	Total number of morbidities	Mean number of morbidities per person ±S.D
Age (Years)			
60-64	78	265	3.28 ±1.53
65-70	32	117	3.12 ±1.39
70-74	23	88	3.78 ±1.98
75-80	20	60	4.15 ±2.10
>80	18	71	4.17 ±1.65
Gender			
Male	83	252	3.02 ±1.39
Female	88	349	3.97 ±1.82
Education			
Illiterate	93	327	3.49 ±1.62
Literate	78	274	3.53 ±1.75
Marital Status			
Single	7	22	3.14 ±1.07
Married	154	537	3.47 ±1.68
Widowed	10	42	4.40 ±2.01
Total	171	601	3.51 ±1.69

Table-2: Prevalence of various morbidities in all the subjects and in male and females separately.

Morbidities	Male n=83 (%)	Female n=88 (%)	Total n=171 (%)	P value of chi square
Hypertension	42 (50.6)	63(71.6)	105(61.4)	0.005*
Anaemia	20 (24.1)	60(68.2)	80(46.8)	0.0001*
Diabetes	20 (24.1)	39(44.3)	59(34.5)	0.005*
Arthritis	19 (22.9)	27(30.7)	46(26.9)	0.328
Coronary heart disease	24 (28.9)	19(21.6)	43(25.1)	0.294
Hepatitis	23(27.7)	18(20.5)	41(24.0)	0.267
Osteoporosis	3(3.6)	25(28.4)	28(16.4)	0.0001*
Chronic kidney disease	14(16.9)	11(12.5)	25(14.6)	0.419
Chronic liver disease	5(6.0)	17(19.3)	22(12.9)	0.01*
Depression	8(9.6)	10(11.4)	18(10.5)	0.713
Stroke	6 (7.2)	10(11.4)	16(9.4)	0.353
Benign prostatic hyperplasia	14(16.9)	0(0)	14(8.2)	0.0001*
Pneumonia	5(6.0)	9(10.2)	14(8.2)	0.316
Asthma	8(9.6)	4(4.5)	12(7.0)	0.193
Parkinson	9(10.8)	3(3.4)	12(7.0)	0.05*
Cancer	3(3.6)	8(9.1)	11(6.4)	0.145
Tuberculosis	6(7.2)	4(4.5)	10(5.8)	0.455
Haemorrhoids	5(6.0)	5(5.7)	10(5.8)	0.924
Peptic ulcer disease	4(4.8)	5(5.7)	9(5.3)	0.80
Dementia	1(1.2)	8(9.1)	9(5.3)	0.02*
Chronic obstructive pulmonary disease	5(6.0)	3(3.4)	8(4.7)	0.522
Alzheimer	3(3.6)	0(0)	3(1.8)	0.07
Arrhythmias	1(1.2)	2(2.3)	3(1.8)	0.59
Heart failure	2(2.4)	1(1.1)	3(1.8)	0.526

*P value <0.05 is taken as significant.

QUESTIONNAIRE

Interview No: _____

Socio-demographic data:

Age: _____

Sex: Male Female

Educational Status: Literate Illiterate

Marital status: Unmarried Married Divorced Widow

Occupation: _____

Address: _____

_____

Date of Admission: _____

Clinical Examination:

Presenting Complaints:

1) _____

2) _____

3) _____

1) Are you being treated for any medical condition(s) at present?

Yes No

2) If yes, then for what?

_____

Past history:

Medical history:

3) Did you have any medical illness before?

Yes No

4) If yes, what problem(s) did you have? _____

Surgical History:

5) Have you ever been hospitalized for any illnesses or operations? If yes, please explain_____

_____

6) Did you have any accident/Trauma before?

Yes No _____

Patient Blood Profile:

1. Blood glucose level: _____
2. Cholesterol level: _____
3. Urea level: _____
4. Creatinine level:_____

General Physical Examination:

Built:	Good	Poor	
General mental status:	Normal	Abnormal	
Weight:	Underweight	Normal	Overweight
Pallor:	Present	Absent	
Pedal edema:	Present	Absent	

Pulse rate: _____ Respiratory rate: _____

Blood Pressure: _____

Systemic review:

CVS:

1) Have you ever been diagnosed with hypertension?

Yes No

2) Have you ever been diagnosed with any of these? (See file records/past records)

Stroke Arrhythmias Heart failure

Coronary Heart Disease Anaemia

3) Have you undergone any heart surgery/procedure?

Yes No

Respiratory:

4) Do you have any breathing problems?

Yes No

5) Have you been diagnosed with any of these? (See file records/past records)

Asthma Chronic obstructive pulmonary disease

Tuberculosis Pneumonia

CNS:

6) Has anyone ever told you that you are facing memory loss?

Yes No

7) If yes, then mode of documentation?

Documents Self Provisional diagnosis

8) Have you been diagnosed for tremors?

Yes No

9) If yes, are they?

Resting tremors Intentional tremors

10) Have you been diagnosed with any of the following? (See file records/past records)

Alzheimer Parkinson Depression Dementia

GIT:

11) Do you experience GI upsets?

Diarrhoea Constipation

12) Have you been diagnosed with any of the following?

Peptic ulcer disease Haemorrhoids Chronic hepatitis

Hepatic encephalopathy Diabetes Mellitus

Urogenital:

13) Has a doctor ever told you that you have any kidney stones?

Yes No

14) Has a doctor ever told you that you have chronic kidney disease?

Yes No

15) Have you ever undergone dialysis?

Yes No

16) Have you undergone prostate surgery in case of males?

Yes No

17) Have you undergone hysterectomy in case of females?

Yes No

18) Have you ever been diagnosed with benign prostatic hyperplasia?

Yes No

Musculoskeletal:

19) Do you have history of falls and fractures?

Yes No

20) If yes, have you been diagnosed with osteoporosis?

Yes No

21) Has a doctor diagnosed you any arthritis?

Yes No

22) If yes, then which one?

Osteoarthritis Rheumatoid arthritis

males 42 (50.6%). This was followed by anaemia which was 80(46.8%) p<0.001 [Females: 60(68.2%) vs. males: 20(24.1%)] and Diabetes mellitus with 59(34.5%) [Females: 39(44.3%) vs. males: 20(24.1%)] p<0.005. A significantly higher proportion of geriatric women suffered from osteoporosis [females: 25(28.4%) vs. males: 3(3.6%)], chronic liver disease [Females: 17(19.3%) vs. males: 5(6.02%)], dementia (females: 8(9.1%) vs. males: 1(1.2%)). On the other hand, the disease more frequently encountered in males than females was Parkinson's disease [males: 9(10.8%) vs. females: 3(3.4%)]. Whereas, benign prostatic hyperplasia in males accounted for 14 cases (16.9 %).

Discussions

Among 171 subjects, a total of 601 illnesses were registered. This study highlights that the most common morbidity was hypertension, more in females than in males. The results are consistent with the studies conducted in Karachi,[4] India,[8,9] and South Korea.[10]

Anaemia was found to be the 2nd most common morbidity. Age related anaemia, a common morbidity is due to declining ratio of bone marrow cells to fat cells and a reduced marrow response on stimulation from erythropoietin.[9,11] Higher ratio in geriatric women than men is related to multiple pregnancies, nutritional challenges and other gynaecological problems. Third in the list is diabetes mellitus, also highlighted by other studies.[8,10] Elderly are threatened for harbouring type 2 diabetes mellitus due to the combination of rising insulin resistance and falling pancreatic islet function.

Interestingly, gender based diversity was observed in our study. For example, coronary heart disease was 2nd most common in males and 6th most common in females (Table-2). Aging comes with compromised elasticity and increased atherosclerotic thickening of the major arteries.

Musculoskeletal ailments like osteoporosis and arthritis stand as 4th and 5th most prevalent diseases in females, being much lower amongst males. Hormonal withdrawal in elderly females leads to such osteoporotic and degenerative changes.

These findings complemented those observed in other studies.[6,10] Highest mean in widowed was reflected suggesting their financial dependence on others for catering their medical needs in our setup. This has also been documented by another study.[6] Interestingly, larger number of diseased subjects were illiterate and had low awareness about the preventive measures for these morbidities.

Limitation

The subjects enrolled are heterogeneous with regard to their ethnicity, locality and time of presentation, thereby limiting the generalization of their findings. Furthermore, morbidities were recorded using patients' files so any undiagnosed disease was not included.

Conclusion

The three most commonly encountered diseases in the geriatric population are hypertension, anaemia and diabetes mellitus. This data will enhance understanding of a dire need to create awareness among people regarding active ageing. Active aging is the process of optimizing health opportunities in early life, so that the risk of developing diseases in later life is substantially reduced.

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