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Original Article

A STUDY OF NON-COMMUNICABLE MORBIDITY PATTERN IN GERIATRIC PATIENTS ATTENDING A REFERRAL RAILWAY HOSPITAL IN ALLAHABAD, UTTAR PRADESH

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ABSTRACT

Research question: What types of non-communicable geriatric cases attend the Railway referral hospital in Allahabad, Uttar Pradesh? **Objectives:** 1) To identify the various morbidities in the geriatric population attending the OPD of the selected hospital. 2) To observe the sex-wise difference of such morbidities among the studied subjects. **Study design:** Hospital-based cross-sectional study. **Study location:** the North Central Railway Hospital of Allahabad. **Study duration:** 1 year (from March, 2010 to February, 2011). **Material and method:** Medical record analysis, clinical history taking and examination using a pretested questionnaire. **Results:** Total 467 respondents were included in the study (235 males and 232 females). Three-fourth of the subjects rated their health status as either 'mostly' or 'somewhat' healthy. Nearly 62% had vision abnormality while 15.2% suffered from impaired hearing. Respiratory (43.5%) and musculoskeletal symptoms were among the most commonly observed morbidities. Diabetes mellitus and overactive bladder syndrome were significantly commoner among males while respiratory complaints, osteoarthritis, rheumatoid arthritis and low back ache were more common in females as compared to males. Discharge per vaginum was the most common gynecological problem noted (41.4% of all female patients). **Conclusion:** The study identifies the common morbidities in geriatric hospital attendees and underscores the need for appropriate resource allocation and arrangements.

Key words: morbidity, non-communicable disease, geriatric population

INTRODUCTION

India's aging population is gradually increasing in proportion with decreasing crude birth and death rates and increasing life expectancy at birth. This trend has established itself through the past contiguous decadal census calculations. Communicable diseases do not show a fixed pattern of change with the age of man. However, non-communicable diseases (NCDs) like Hypertension (HTN), Diabetes Mellitus (DM), Musculoskeletal (MSK) disorders, Refractive errors, etc and their related complications become more prevalent in the elderly. A WHO report states that NCDs account for at least 32% of all deaths in India with a word of caution that this could be an 'under and inadequate estimation'.[1] The impact should be higher in the geriatric population. Health services need to be strengthened accordingly with increased emphasis on key service utilization determinants like service availability and accessibility. As such, even in hierarchical health care delivery systems, referral centres take a stake in not just the management of difficult referred cases but also the first-time diagnosed and even the non-diagnosed.

With this background, the present study was taken up to profile the morbidity pattern of the geriatric attendee of one such referral health care set-up. The following objectives were affixed for the study:

- To identify the various morbidities in the geriatric population attending the OPD of the selected hospital
- To observe the sex-wise difference of such morbidities among the studied subjects.

The resultant picture was taken up for critical review.

MATERIAL AND METHOD

The study was conducted in the North Central Railway Hospital of Allahabad from March, 2010 to February, 2011 (1 year study duration). A pretested proforma was used to record the details. Verbal consent was obtained and a total of 467 patients (235 males and 232 females) above 60 years of age were included in the study from the Out-Patient Department of the hospital between 10 AM to 2 PM. Wherever exact date of birth was not available, age was estimated using the 'social calendar method' taking 1947 (the year of India's Independence) as a convenient land-mark. If the subject had an income source which he/she considered enough for his/her sustenance, the subject was classified as 'economically independent'. If the source was reckoned as insufficient for sustenance by the interviewee, inclusion was made into the 'economically partly-dependent' category. Housewives and non-pensioners formed the 'economically dependent' group.

Wherever available, the diagnosis was obtained from written medical records available with the patient failing which a detailed case history was obtained along with complete clinical examination to arrive at a final diagnosis. Cases were grouped broadly as 'Vision', 'Audition', 'Diabetic', 'Cardiovascular', 'Respiratory', 'Musculoskeletal', 'Surgical', 'Gynecological', 'Dermatological' and 'Psychiatric'. Ailments that did not fit into any of these categories were grouped as 'Others'. The following criteria were used to diagnose the undiagnosed cases:

Case group	Diagnosis - Criteria / Method used
Vision	"E" chart (If the subject uses spectacles for vision or has a vision poorer than 6/18 in the better eye: 'low vision'; vision poorer than 3/60 in both eyes was considered 'blind')
Hearing	If the interviewee admits straining of ears for hearing or uses hearing aid or the interviewer has to talk louder than usual or relevant tuning fork tests (Rinne's & Weber's test using a 256 Hz tuning fork) results → 'Impaired hearing'
Diabetic	ADA criteria
Cardiovascular	Congestive cardiac failure (CCF) - Framingham criteria Hypertension - JNC VII criteria
Respiratory	Chronic cough - H/o cough for >1 month & TB ruled out Other respiratory problems - Any complaint related to respiratory system and not classified as chronic cough or TB
Musculoskeletal, Surgical, Gynecological, Psychiatric, Dermatological	History taking & clinical examination (1. Over Active Bladder Syndrome i.e., OAB : as per ICS definition; included in 'surgical' cases) (2. Any skin related complaint was grouped under this 'dermatological' heading)

Since the study was of limited duration, criteria adherence had to be diluted wherever a follow-up visit was required for a final confirmatory diagnosis but could not be assured. In such cases, the diagnosis was based upon the first sitting results to estimate the higher prevalence limit.

RESULTS

Males and females were almost equally represented in the study (50.3% and 49.7% respectively). Most (68.5%) of the study subjects were in the age group of 60-69 years followed by the 70-79 years age group (21.6%). Sparing only 6 subjects (1.3%) who were unmarried, almost 2

out of every other 5 interviewee (37.9% of the total 467) were widowed. Ninety three percent of the subjects were Hindus while the remaining 7% were Muslims. Only 17 % of the interviewees were pre-diagnosed.

Twenty one percent of the subjects (n=98) were found to be 'economically independent'. This group comprised mostly of self-employed (39.8%) persons and pensioners (27.6%). The 'economically partly-dependent' group was formed mostly by unskilled workers (5.2%) and accounted for 17.3% of the total persons interviewed. Majority (61.7%) of the study subjects were 'economically dependent'.

Table 1: Distribution of the subjects by age and sex

Age (in yrs)	Male (n=235) (%)	Female (n=232) (%)	Total (n=467)(%)
60-69	161 ($68.5_{34.5}$)	159 ($68.5_{34.0}$)	320 (68.5)
70-79	45 ($19.1_{09.6}$)	56 ($24.1_{12.0}$)	101 (21.6)
>80	29 ($12.3_{06.2}$)	17 ($07.3_{03.6}$)	46 (09.9)
Total	235 (50.3)	232 (40.7)	467 (100)

*(*Subscripted values denote proportion among all 467 study subjects*)*

Surprisingly, even though the data was collected from the out-patient department of a referral hospital, three-fourth of the subjects rated their health status as either 'mostly' or 'somewhat' healthy. The remaining 1/4th perceived them self as 'not healthy'.

Table 2: Perceived current health status of the study subjects

Health Perception	Male (n=235)(%)	Female (n=232)(%)	Total (n=467)(%)
Mostly healthy	173 ($73.6_{37.0}$)	134 ($57.8_{28.7}$)	307 (65.7)
Somewhat healthy	16 ($06.8_{03.4}$)	30 ($12.9_{06.4}$)	46 (09.9)
Not healthy	46 ($19.6_{09.9}$)	68 ($29.3_{14.6}$)	114 (24.4)

*(*Subscripted values denote proportion among all 467 study subjects)

Vision abnormality was detected more commonly as compared to hearing impairment. As much as 62% of the hospital geriatric attendees had either low vision or blindness while 15% had hearing problem. While hypertension, respiratory problems (chronic cough and others) and musculoskeletal symptoms were more common among the study subjects altogether, discharge per vaginum was the commonest (41.4%) among gynecological morbidities. Diabetes mellitus was significantly commoner among males (χ^2= 3.707, Df=1, p=0.054) while respiratory complaints, osteoarthritis, rheumatoid arthritis and low back ache was more common in females as compared to males.

DISCUSSION

The source of data from which cases are identified clearly influences the rates that we calculate for expressing the frequency of disease. It may be very tempting to look at patient records in one hospital and generalize the findings to all patients in the general population. However, this is not a legitimate approach because patients who come to a certain clinic or hospital often are not representative of all patients in the community.[2] Thus, pattern of disease seen in hospitals may not be a good guide to the pattern of disease in the community.[3] Various factors determine such estimates made from hospitals viz., the health-seeking behavior of the patient, access, social class of the subject, type of referral, etc.[4] Patients with more number of coexistent morbidities are more likely to report to the hospital. Also, the nature of disease and degree of suffering is a further reason for seeking health care. In the present study, more men refused to participate as compared to females. The reasons stated include lack of time and lack of interest as no monetary benefit was promised. Thus, the chance of selection (volunteer) bias cannot be ruled out. Similarly, a loss to follow-up bias could have had a bearing on the final study findings. Women attendance in the hospital could have also been positively impacted by the fact that women manage to arrange time for a medical check-up more frequently as compared to their male counter-parts (though the reverse is usually true).

The difference between male and female morbidity is consistent for most of the musculoskeletal disorders reported in the present study. The prevalence of RA in the population has been estimated within the range of 0.3–2.1% with women being affected

approximately three times more often than men. Prevalence has also been documented to be increasing with age; sex differences diminish in the older age group.[5] This study has estimated the prevalence of RA at 1.7% with a female to male ratio of almost 8:1. The difference has been noted as statistically significant.

Table 3: Visual refraction and Auditory status of the study subjects

Case Group	Male (n=235) (%)	Female (n=232) (%)	Total (n=467) (%)	χ^2 (Df)	p value
Vision					
Normal vision	93 (39.6)	85 (36.7)	178 (38.1)	1.105 (2)	0.576
Low vision	132 (56.2)	140 (60.3)	272 (58.3)		
Blind	10 (04.3)	07 (03.0)	17 (03.6)		
Hearing					
Normal hearing	196 (83.4)	200 (86.2)	396 (84.8)	0.711 (1)	0.399
Impaired hearing	39 (16.5)	32 (13.8)	71 (15.2)		
Diabetes Mellitus	13 (05.5)	24 (10.3)	37 (07.9)	3.707 (1)	0.054
Cardio-vascular					
Congestive heart failure	05 (02.1)	03 (01.3)	08 (01.7)	0.752 (1)	0.386
Hypertension	39 (16.6)	45 (19.4)	84 (18.0)	0.621 (1)	0.431
Respiratory			**203 (43.5)**		
Chronic cough	27 (11.5)	19 (08.2)	46 (19.7)	6.868 (2)	0.032
Other respiratory problems	66 (28.1)	91 (39.2)	157 (33.6)		
Musculoskeletal					
Osteoarthritis	59 (25.1)	84 (36.2)	143 (30.6)	6.771 (1)	0.009
Neck pain	12 (05.1)	06 (02.6)	18 (03.9)	2.001 (1)	0.157
Rheumatoid Arthritis	01 (0.4)	07 (03.0)	08 (01.7)		0.037*
Low back ache	29 (12.3)	54 (23.3)	83 (17.8)	9.553 (1)	0.002
Surgical					
Benign Prostatic Hyperplasia	19 (08.1)		19 (08.1)@		
Over Active Bladder Syndrome (OAB)	16 (06.9)	29 (12.5)	45 (09.6)	4.343 (1)	0.037
Hemorrhoids, anal fissure & fistula	09 (03.8)	05 (02.2)	14 (03.0)	1.126 (1)	0.289
Gynecological					
Bleeding per vaginum		13 (05.6)	13 (05.6)#		
Discharge per vaginum		96 (41.4)	96 (41.4)#		
Prolapsed uterus		21 (09.1)	21 (09.1)#		
Psychiatric (?depression, ?dementia)	09 (03.8)	13 (05.6)	**22 (04.7)**	0.818 (1)	0.366
Dermatological lesions	22 (09.4)	32 (13.8)	**54 (11.6)**	2.242 (1)	0.134
Others	29 (12.3)	26 (11.2)	**55 (11.8)**	0.144 (1)	0.704

**Fisher's exact; @percentage calculated of all male patients only; #percentage calculated of all female patients only*

Osteoarthritis is the most common type of arthritis and one of the leading causes of disabilities in the elderly.[5] Over age 55, the age specific prevalence is greater in women than men.[6] Women have a greater number of joints involved and more frequently report morning stiffness, joint swelling, and nocturnal pain.[7] The study in discussion is concordant with these facts. OA was present in almost 1/3rd of the study subjects (F:M = 1:0.7).

Low back ache and neck pain have been long identified as common musculoskeletal morbidities [8, 9] among the general population with a high recurrence rate.[10, 11, 12] Although significant difference was not obtained between the prevalence of neck pain among male and female subjects, low back ache was more common among the women included in the study. Most women could date their back ache to their pregnancies and hence, this could be a suggestive/contributory risk factor. Neck pain is more prevalent among people who have maintained a prolonged neck-flexion posture (e.g., those who have to work on computers, etc).[13] The study subjects probably did not have much predisposition of the like.

The prevalence of OAB syndrome has been variously estimated between 3% to 43% among the general population and is reportedly higher in females as compared to their male counterparts.[14] The present study is in line with these documentations and finds a significant difference between prevalence in females and males.

Differences observed for diabetes mellitus and respiratory symptoms in the present study do not find much support in the literature available at hand. These could be incidental findings and need to be researched more thoroughly.

The fact that most of the interviewees considered their health to be in 'acceptable' condition shows that they are not without hope! Observations of this study could be lacking generalizability but may be used more judiciously in designing health services resource allocations in referral centres like the one in context. Righteously, the problems of the geriatric population must be identified and adequately addressed to in order to ensure a good quality of *'autumn'* life.

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