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BURDEN OF INSOMNIA AND ITS ASSOCIATION WITH CO-MORBIDITIES AMONG GERIATRIC PATIENTS AT A SECONDARY CARE RURAL HOSPITAL IN DELHI

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ABSTRACT

Introduction: Insomnia is defined as difficulty in initiating or maintaining sleep or non-restorative sleep associated with daytime consequences such as fatigue, decreased concentration, or daytime distress. The elderly are also vulnerable to long term diseases such as cardiovascular illnesses, stroke, cancers, diabetes, musculoskeletal and mental illnesses like dementia depression or insomnia. **Materials and Methods:** A cross-sectional study was conducted over a period of two months among the geriatric patients attending a geriatric clinic at a secondary care rural hospital in Delhi, India. Total of 100 patients participated in the study aged 60 years and above. A pretested semi structured interview schedule containing items on demographic profile and co morbidities was used. Insomnia was assessed by insomnia-screening tool. The study was approved by institutional ethical committee. Informed consent was taken from all participants. The data was analysed using SPSS version 17.0 and p value <0.05 was considered statistically significant. **Results:** Out of 100 subjects, 46% were males and 54% were females. Around 42.5% of males and 57.5% of females were in 60-69 years age group. The mean age of male and females were 67.5 (±5.9) and 64.4 (±4.4) years respectively. **Conclusions and Recommendations:** The geriatric population has high burden of insomnia substance abuse, respiratory problems and refractive errors were found to be associated with insomnia.

KEYWORDS: geriatric, insomnia, co-morbidities, rural.

INTRODUCTION

The Government of India has adopted 'National Policy on Older Persons' in January 1999. The policy defines 'senior citizen' as a person who is 60 years old or above. The population over the age of 60 years has tripled in last 50 years in India and will relentlessly increase in the near future. According to census 2001, older people were 7.7% of the total population, which increased to 8.14% in census 2011. The projections for population over 60 years in next four censuses are: 133.32 million (2021), 178.59 (2031), 236.01 million (2041) and 300.96 million (2051).[1, 2]

The old age is not a disease in itself, but the elderly are vulnerable to chronic diseases such as cardiovascular illness, stroke, cancers, diabetes, musculoskeletal and mental illnesses like dementia depression or insomnia.

Insomnia is defined as difficulty in initiating or maintaining sleep or non-restorative sleep associated with daytime consequences such as fatigue, decreased concentration, or daytime distress.[3, 4, 5] Insomnia may be the result of the chronic conditions, or may be the precursor of the chronic conditions. Alternatively, it may share the same underlying factors or be an incidental condition. Insomnia subsequent to chronic conditions has been traditionally called 'secondary insomnia' but due to the complexity of the association where the temporal association or causality is not always clear, the term 'co-morbid insomnia' to denote this condition was introduced in 2005 by the National Institutes of Health (NIH).[6] As limited literature is available about insomnia affected elderly attending the hospital for various co-morbidities, this study was conducted to estimate the burden of insomnia among geriatric patients attending a geriatric clinic in a secondary care hospital in Delhi, India and to assess any association present between insomnia, co-morbidities and substance using habit in the study population.

MATERIALS AND METHODS

A cross-sectional study was conducted over a period of two months among geriatric patients attending geriatric clinic in a secondary care rural hospital in Delhi, India.

Total 100 patients participated in the study, including male and female, age 60 years and above. Patients who were attending clinic first time were included and those who were suffering from severe illness or requiring hospitalization or unable to give interview due to speech or severe hearing problem were excluded from the study. A pretested semi structured interview schedule containing items on demographic profile and co-morbidities was used followed by a general physical examination. Insomnia was assessed by insomnia-screening questionnaire - Clinical Practice Guideline Working Group based on Canadian expert and primary care physician consensus.[7] It has six diagnostic domains: first six questions are for assessment of insomnia and rest are on psychiatric disorders, circadian rhythm disorder, movement disorders, and parasomnias. Each question in each domain had a sliding scale of response between 1 and 5, with 1 = never, 2 = rarely, 3= occasionally, 4 = most nights/days, and 5 = always. According to this screening tool, a person was considered to have "insomnia" if the answer was 3, 4 or 5 on two or more of the insomnia domain questions (Q1–6) and had significant daytime impairment. A person was considered to have "likelihood of insomnia" if the answer was 3, 4, or 5 on any question from Q1–6. Patients who were on treatment of specific disease already or had prescriptions by specialist were considered to have the disease. The study was approved by Institutional Ethics Committee. The objectives and procedure of the study was explained to all the participants. Written informed consent was taken from the participants before start of study. The association between insomnia and co-morbidities was tested using chi-square or fisher's exact test with SPSS version 17.0 and p value <0.05 was considered statistically significant.

RESULTS

Out of total 100 subjects, 46% were males and 54% were females. Around 42.5% of males and 57.5% of females were in 60-69 years age group. The mean age (+SD) of male and females were 67.5 (±5.9) and 64.4 (±4.4) years respectively.

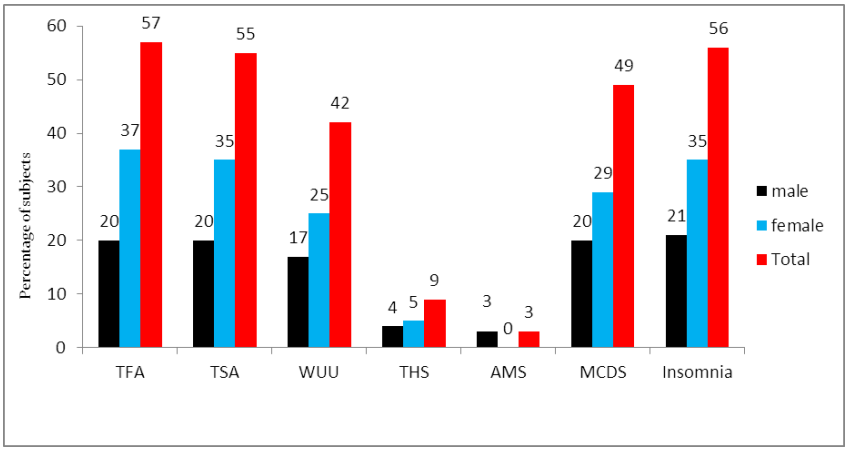

Figure.1 Overall burden of insomnia among study subjects.

TFA-trouble in falling asleep, TSA-Trouble staying asleep, WUU- Wake up unfreshed, THS- Take anything to help sleep, AMS- Alcohol to make asleep, MCDS-Medical condition disrupts sleep

Overall, number (56%) at all places of the study population was suffering from insomnia. A higher number of females (62.5%) were affected than males (37.5%) but this difference was not statistically significant ($\chi 2$= 3.702, p>0.05) (Figure.1)

Table 1: Association between insomnia and personal habits among study subjects.

Substance use		Insomnia n (%)		Total n (%)	χ^2, p value
		Present (%)	Absent (%)		
Smoking	Present	14 (14)	13 (13)	27 (27)	0.258, 0.611
	Absent	42 (42)	31 (31)	73 (73)	
Tobacco chewing	Present	9 (9)	1 (1)	10 (10)	5.231#, 0.040*
	Absent	47 (47)	43 (43)	90 (90)	
Alcohol	Present	2 (2)	9 (9)	11 (11)	7.174#, 0.010*
	Absent	54 (54)	35 (35)	89 (89)	
	Total (N=100)	56 (56)	44 (44)	100 (100)	

* p value less than 0.05 is significant, # Fischer's exact test applied.

Common substance using habits were assessed and 27% were found to be smokers, 10% reported to use tobacco for chewing and 11% with alcohol intake habit. It was observed that tobacco chewing and alcohol intake had an association with insomnia. (Table.1)

Table 2: Association between acute diseases and insomnia among study subjects.

Systems		Insomnia n (%)		Total n (%)	χ^2, p value
		Present	Absent		
Respiratory (n_1)	Present	28 (28)	13 (13)	41 (41)	4.262, 0.039*
	Absent	28 (28)	31 (31)	59 (59)	
Locomotor (n_2)	Present	7 (07)	12 (12)	19 (19)	3.494, 0.062
	Absent	49 (49)	32 (32)	81 (81)	
Gastrointestinal (n_3)	Present	1 (01)	5 (05)	6 (06)	4.008#, 0.084
	Absent	55 (55)	39 (39)	94 (94)	
Others (n_4)	Present	2 (02)	5 (05)	7(07)	2.29#, 0.235
	Absent	54 (54)	39 (39)	93 (93)	
	Total (N=100)	56 (56)	44 (44)	100 (100)	

Acute diseases considering within 2 weeks duration, $n_{1=}$ upper respiratory tract infection, $n_{2=}$ acute joint pain, generalised body ache, fractures $n_{3=}$ constipation, diarrhoea, dyspepsia, $n_{4=}$ skin, urinary, dental and other non specific symptoms, # Fischer's exact test applied.* P value less than .05 is significant.

Majority of the study population (n=100) were suffering from acute respiratory problems (41%) followed by locomotor (19%) and gastro-intestinal symptoms (6%). Only respiratory system problems were found to be associated with insomnia ($p<0.05$) (Table.2)

Table 3: Association between chronic morbidity and insomnia among study subjects.

Disease		Insomnia n (%)		Total n (%)	χ^2, p value
		Present	Absent		
Diabetes	Present	8 (8)	10 (10)	18 (18)	1.190, 0.275
	Absent	48 (48)	34 (34)	82 (82)	
Hypertension	Present	10 (10)	7 (07)	17 (17)	0.066, 0.797
	Absent	46 (46)	37 (37)	83 (83)	
Asthma/COPD	Present	10 (10)	6 (06)	16 (16)	0.327, 0.568
	Absent	46 (46)	38 (38)	84 (84)	
Gastritis	Present	8 (08)	8 (08)	16 (16)	0.278, 0.598
	Absent	48 (48)	36 (36)	84 (84)	
Pain%	Present	25 (25)	17 (17)	42 (42)	0.365, 0.546
	Absent	31 (31)	27 (27)	58 (58)	
Hearing impairment	Present	15 (15)	10 (10)	25 (25)	0.216, 0.642
	Absent	41 (41)	34 (34)	75 (75)	
Cataract	Present	33 (33)	25 (25)	58 (58)	0.045, 0.832
	Absent	23 (23)	19 (19)	42 (42)	
Refractive errors	Present	26 (26)	11 (11)	37 (37)	4.854, 0.028*
	Absent	30 (30)	33 (33)	63 (63)	
Central nervous system	Present	1 (01)	1 (01)	2 (02)	0.030#, 1.00
	Absent	55 (55)	43 (43)	98 (98)	
	Total (N=100)	56 (56)	44 (44)	100 (100)	

p value less than .05 is significant, % Pain includes; generalised body ache, headache, knee pain, other joint pains and chest wall pain, COPD- chronic obstructive pulmonary disease.

Of the total 100 subjects 58 % had cataract, 37% had refractive errors, 25% had hearing impairment and 42% of the subject complaint of various pain in the body within the last three months. The Chi-square test results showed only refractive errors ($p<0.05$) were significantly associated with insomnia. (Table.3)

DISCUSSION

In the present study, 56% of the total subjects were suffering from insomnia. In a similar hospital based study conducted by Gambhir[8] et al, reported 32% of study population suffering from insomnia which is lower than the present study which may be due to difference in the catchment population and demographic profile.

Similar results were seen in a multicentric study conducted by Foley[9] et al where 57% of patients reported difficulty in initiating and maintaining sleep. Mazzotti[10] et al also estimated insomnia in their study which was approximately 37%. This study showed a female predilection for sleep disorders. Such differences can be attributed due to variations in sample size and the tool[11] used to detect insomnia. Present study showed an association of insomnia with substance abuse habits like tobacco chewing and alcohol intake which goes in accordance with some previous studies.[12, 8] Smoking cessation is often a cause of insomnia, although tobacco smoking itself can be a culprit in sleep disorders in the elderly as has been suggested in the other population[13,14], but in present study, insomnia was found to be independent of smoking.

Among study subjects, acute respiratory system diseases (41%) had highest prevalence which contributed around 50% to the insomnia and had significant association with it. Gambhir[8] et al detected cardiovascular disorders to be the most common co-morbidities in patients with insomnia. Seasonal variations could be responsible for high number of upper respiratory tract diseases cases in present study and also due to differences in the type and number of patients attending the clinic. Also present study showed that refractive errors were significantly associated with insomnia, headache and eye muscle strain may attribute to the difficulty in sleeping. However, any conclusion on temporal association of insomnia and co-morbidities is beyond this study.

Conclusions and Recommendations

The geriatric population has a high burden of insomnia with no gender differences. Substance abuse, respiratory problems and refractive errors were associated with insomnia. Multicenteric studies are needed from both rural and urban settings to determine the actual prevalence of insomnia.

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