International Journal of Pharmacy
Journal Homepage: http://www.pharmascholars.com

Research Article **CODEN: IJPNL6**

INSOMNIA & DRUGS USED: EPIDEMIOLOGICAL & DRUG UTILIZATION STUDY IN PSYCHIATRY UNIT OF A TEACHING HOSPITAL

Swati Mishra[1,*], Suvendu N.Mishra[2], Monalisa Jena[1], S.S.Mishra[1]

[1]Department of Pharmacology, IMS & SUM hospital, SOA University, BBSR, Odisha-751003
[2]Department of Psychiatry, IMS & SUM hospital, SOA University, BBSR, Odisha-751003

***Corresponding author e-mail:** mishraswati017@gmail.com

ABSTRACT

Insomnia, currently the most prevalent sleep disorder characterised by difficulty in initiating and maintaining sleep. Several studies have been carried out in different populations regarding use of medications for its treatment; however there is need for more studies aimed at taking a closer look on the drugs used in our population. Hence, this study was carried out to observe the utilization pattern of drugs for insomnia in our hospital. A prospective observational drug utilization study of 252 patients of both sexes and all ages suffering from insomnia attending the Psychiatry outpatient department was carried out as per WHO – DUS(world health organisation- Drug utilisation study) and DSM – V guidelines. It involved administering a Proforma to consenting subjects whose psychiatric diagnoses were ascertained using Structured Clinical Interview for DSM-V. One hundred twenty patients out of two hundred fifty two patients were from age group 25-45 years and thirty seven patients were above 65 years. Average number of drugs for insomnia per prescription was not more than two. Most commonly prescribed drug were Clonazepam 50(13.9%) followed by Lorazepam 39(10.8%). The newer benzodiazepines like Zolpidem, Zaleplon were also commonly used but Eszopiclone 6(1.67%) was the least commonly used drug. The study concludes the prevalence of insomnia in younger age groups and association of it with other disorders. Benzodiazepines and newer non-benzodiazepine hypnotics were the most frequently used drugs for treating insomnia in our population.

Key words: Sleep, Insomnia, DSM-V, WHO-DUS

INTRODUCTION

Humans spend approximately one-third of their lives in sleep, which is necessary for emotional and physical restoration. Insomnia or sleeplessness is a common public health problem in which there is an inability to fall asleep or to stay asleep as long as desired. [1,2] Chronic insomnia affects approximately 9% to 12% of the population [3-5] and is more prevalent than heart disease, cancer, AIDS, neurologic disease, breathing problems, urinary problems, diabetes and gastrointestinal problems. [6] Sleep problems have been associated with decreased work productivity, more days of absence from work and increased risk of serious accidents. [7, 8] They have significant economic burden for younger and older patients. [9] Population-based studies suggest that about 30% of the total population complains of sleep disruption, while approximately 10% has associated symptoms of daytime functional impairment with the diagnosis of insomnia, although it is unclear about the proportion among the 10% of population really suffering from chronic insomnia . [10]Untreated insomnia often has repercussions on socio-professional or cognitive functioning of insomniacs. Pharmacologic therapy is the main treatment of insomnia. [11]Several studies have been carried out in different populations regarding use of medications for its treatment; however there is need for more studies aimed at taking a closer look at the drugs used in our population. Hence, this study was carried out to observe the utilization pattern of drugs used in treatment of insomnia along with the

sociodemographic profile of patients of insomnia in our hospital.

PATIENTS & METHODS

The present study was prospective observational drug utilization study (DUS) done at Psychiatric outpatient department in collaboration with department of pharmacology, IMS & SUM hospital, Bhubaneswar which was approved by Institutional Ethics Committee.The WHO recommendations on conducting DUS [12] were used in preparation of proforma. [13] Prescriptions of patients of both sexes and all ages, suffering from insomnia as diagnosed by the Psychiatrist based on the DSM-V criteria and started on at least one drug for insomnia, were selected after explaining to them the scope of our study and obtaining their written informed consent. Duration of study was from 1st July 2013 to 30th June 2014. A total of 276 patients were enrolled but 24 of them declined to participate. So, 252 prescriptions containing 358 drugs for insomnia were analyzed. Subjects were first seen for their routine out-patient follow-up before those that consented to participate in the study were given the socio-demographic questionnaire. Items on the questionnaire included age, sex, employment status and nature of employment, monthly income bracket, presence of stressors and marital status. This was followed by the administration of Structured Clinical Interview for DSM-V (SCID) [15, 16] in the form of an interview by the psychiatrist. Thereafter the Sleep-50 questionnaire [14] was administered to evaluate for and diagnose insomnia. The sociodemographic questionnaire and the Sleep-50 were filled by the subject in the presence of one of the researchers, who was available in case the subject needed clarification. All the data were analyzed using suitable statistical methods.

RESULTS

In the sociodemographic profile of patients120 patients out of 252 patients were from age group 25-45 years and 37 patients were above 65 years. There was no significant differences between male & female patients (male = 131 & female = 121). Among the patients suffering from insomnia most of them (128) were married where as 94 patients were unmarried & rest included divorced/ widowed .Only sixty persons were unemployed where as rest are employed. Stressors were present in 174 patients. (Table 1)

.

Table-1; Sociodemographic profiles of study subjects attending psychiatry out patients department (n=252)

Demographic Profile		No. of study subjects (%)
Age (in years)	25-45	120(47.6%)
	45-65	95(37.6%)
	>65	37(14.6%)
Gender	Male	131(51.98%)
	Female	121(48.01%)
Marital status	Married	128(50.79%)
	Unmarried	94(37.3%)
	Divorced/separated	12(4.76%)
	Widowed	18(7.14%)
Employment status	Employed	192(76.19%)
	Unemployed	60(23.8%)
Stressors	Present	174(69.04%)
	Absent	78(30.95%)

In the assessment of prescribing pattern, the average number of drugs per prescription was 3.19±0.11. No prescription contained more than 4 drugs. In our study about 1.43±0.06 number of drugs was prescribed for insomnia per prescription. So, average number of drugs for insomnia per prescription was not more than two. No fixed dose combinations of drugs were used. About 40.8% prescriptions contained drugs in generic form. Injectable drugs were not prescribed for treatment of insomnia. (Table 2)

Table-2 Assessment of the prescribing pattern of drugs in patients suffering from various types of insomnia attending psychiatry outpatient department (n=252):

Drug use indicators	Result
1. Average number of drugs per prescription (Mean ± SD)	3.19±0.11
2. Average number of drugs for insomnia per prescription (Mean ± SD)	1.43±0.06
3. Percentage of prescriptions containing FDCs drugs for insomnia	0%
4. Percentage of drugs prescribed by generic name	40.8%
5. Percentage of prescriptions with an injection prescribed	0%
6. Percentage of drugs for insomnia prescribed from the hospital drug schedule	0%

Most commonly prescribed drug was Clonazepam 50(13.9%) followed by Lorazepam 39(10.8%) in our study population. (Table 3)Other benzodiazepines like Nitrazepam(9.4%),Diazepam (8.9%) were also prescribed. The newer benzodiazepines like Zolpidem(8.1%), Zaleplon(6.4%) were also commonly used but Eszopiclone 6(1.67%) was the least commonly used drug. The commonly used antihistaminic for insomnia treatment was Promethazine(11.9%).Off label drugs like Amitriptyline was used in 6.7% of population where as Doxepin was used in 6.1% of population. The newer drugs like melatonin antagonist Ramelteon was also prescribed (15 (94.1%) in cases of insomnia.

Table 3; utilization pattern of drugs in insomnia patients attending psychiatry OPD: n=358

Prescribed group of drugs	Individual drugs	No. of drugs (%)	Total
Antihistaminics	Promethazine	30(8.37)	30
Benzodiazepines	Clonazepam	50(13.9)	195
	Nitrazepam	34(9.49)	
	Chlordiazepoxide	26(7.26)	
	Diazepam	32(8.9)	
	Lorazepam	39(10.8)	
	Midazolam	14(3.9)	
Non benzodiazepines	Zolpidem	29(8.1)	58
	Eszopiclone	6(1.67)	
	Zaleplon	23(6.4)	
Antidepressants	Amitriptyline	24(6.7)	60
	Doxepin	22(6.1)	
	Mirtazapine	14(3.9)	
Melatonin agonist	Ramelteon	15(4.1)	15

Insomnia was present in 183 patients who have been diagnosed with other psychiatric diseases.(Table 4) Insomnia was prevalent among patients who are schizophrenic (20.6%) followed by patients suffering from major depressive disorder (15.8%). Patients suffering from insomnia also suffered from bipolar affective disorder (11.1%), anxiety & neurotic disorders (9.92%).

Table-4: Association of insomnia with other psychiatric problems :(n= 252)

Psychiatric conditions	No of patients n (%)
Schizophrenia	52(20.6%)
Major depressive disorders	40(15.8%)
Bipolar affective disorders	28(11.1%)
Anxiety & other neurotic disorders	25(9.92%)
Organic brain disorders	15(5.95%)
Acute psychotic disorders	23(9.12%)
Total	183

DISCUSSION

Insomnia is the sleep disorder for which patients most often request treatment. Insomnia may be defined as poor-quality sleep characterized by difficulty in falling or staying asleep, early morning waking, or un refreshing sleep despite a sufficient opportunity to sleep.[17] A total of 252 subjects were included in our study. 120 out of 252 patients were from age group 25-45 years and 37 were above 65 years .Almost equal number of male (131) & female (121) patients were present in the study population. Among the patients suffering from insomnia most of them (128) were married where as 94 were unmarried & rest included divorced / widowed. Only 60 persons were unemployed where as rest were employed. In a similar study in Nigerian population [18] 102 patients (55.4%), were aged 20-39years, 50 (27.2%) were 40-59 years old and 32 (17.4%) were 60 years and above, most (n=95, %=51.6) were unemployed, predominantly (58.9%) the male subjects, while majority of the employed were female (64.0%).

Out of 252 study populations, insomnia was present in 183 patients having other psychiatric diagnosis. Insomnia was prevalent among patients who were schizophrenic followed by patients suffering from major depressive disorder, bipolar affective disorder, anxiety & neurotic disorders respectively. Moreover, a survey reported that about half of subjects with insomnia also met criteria for a psychiatric disorder. [18] In a similar study [17] Schizophrenia was the most prevalent primary psychiatric diagnosis among the subjects (35.9%). Sleep problems are particularly common in patients with anxiety, depression, bipolar disorder and attention deficit hyperactivity disorder (ADHD). [19]Another study shows that individuals with insomnia are more likely to have a major depressive illness. Longitudinal studies have shown that the persistence of insomnia is associated with the appearance of new depressive episode. [20]

The most commonly prescribed drugs in our study were Clonazepam and lorazepam. The least commonly prescribed drugs were Eszopiclone and Midazolam. In another study in Taiwan the most popular sleep medication was Lorazepam, followed by Zolpidem[22].Hypnotics, sedatives and anxiolytics were prescribed 12.6 times more frequently than off-label used drugs. Benzodiazepines and newer non-benzodiazepine hypnotics are still the most frequently used drugs for treating insomnia in the elderly in Taiwan. [22]

In our study no prescription contained more than four drugs. Another study shows that all the prescriptions were with an average number of drugs not more than two. [21] Most commonly prescribed drug was Clonazepam (13.9%) followed by Lorazepam (10.8%) whereas Nitrazepam(9.49%),Eszopiclone (1.67%) were the least commonly used drug in our study. Off label drugs like Amitriptyline, Doxepin were also used. The first-choice off-label drug used to treat insomnia was Trazodone in a separate study. [21] In another study, sedative and hypnotic drugs dominated the treatment of insomnia; non-pharmacological therapies may have great potential for advancement in future years. [23]

CONCLUSION

Several epidemiological studies have been conducted in order to estimate the prevalence of insomnia, its association with other psychiatric disorders and the drugs used for its treatment in the general population. The reported prevalence rates vary considerably and differences in how insomnia is defined contribute to this variation. Our study provides information regarding the utilization pattern of different drugs in this part of the country. It concludes that insomnia is quite prevalent in the population studied, affects mostly the younger generation and is strongly associated with schizophrenia. Benzodiazepines and newer non-benzodiazepine hypnotics are still the most frequently used drugs for treating insomnia in our study population. Newer drugs like melatonin antagonists are also popularly used in treatment of insomnia. Further studies are needed to identify trends in the pharmacological and non pharmacological treatment of insomnia .Future research effort is warranted for novel tools and clinical trials, especially on insomnia treatments along with the emphasis on adverse drug reactions produced by the drugs used for treatment of insomnia.

LIMITATIONS

The study represents a very small population of patients (small sample size) suffering from insomnia and the drugs used for its treatment. The associated adverse effects are not studied. The study provides the baseline data for comparing similar studies & has given us insight to carry out further studies of similar type in future so as to derive better information.

REFERENCES

1. Golub R. M. "Insomnia". JAMA*:* (2012) 307 (24): 2653–2653.
2. Roth .T ,Insomnia: Definition, prevalence, etiology, and consequences : Jour of cli sleep med : JCSM : official publication of the American Academy of Sleep Medicine ;2007;. 3 (5): S7–10.
3. Ford DE, Kamerow DB: Epidemiologic study of sleep disturbances and psychiatric disorders. An opportunity for prevention? JAMA 1989; 262:1479-84.
4. Gallup Organization. Sleep In America: 1995. Princeton, NJ: Gallup;1995.
5. Mellinger GD, Balter MB, Uhlenhuth EH : Insomnia and its treatment,Prevalence and correlates. Arch Gen Psychiatry 1985;42:225-32.
6. Lichstein KL., Durrence, HH, Riedel, BW, Bush, AJ:Epidemiology of sleep: age, gender, and ethnicity. Mahwah, NJ: Lawrence Erlbaum.; 2004.
7. Balter MB, Unlenhuth EH , New epidemiologic findings about insomnia and its treatment. J Clin Psychiatry ; 1992;53: 34-39.
8. Kuppermann M, Lubeck DP, Mazonson PD, Patrick DL, Stewart AL, et al. Sleep problems and their correlates in a working population. J Gen Int Med, 1995; 10: 25-32.
9. Ozminkowski RJ, Wang S, Walsh JK The direct and indirect costs of untreated insomnia in adults in the United States. Journals Sleep, 2007; 30: 263-273.
10. Leshner A: NIH State-of-the-Science Conference Statement on Manifestations and Management of Chronic Insomnia in Adults. *NIH Consens State Sci Statements* 2005, 22:1-30.
11. Doghramji K: The evaluation and management of insomnia. *Clin Chest Med* 2010, 31:327-339.
12. World Health Organization. How to investigate drug use in health facilities: *selected health use indicators* [Internet]. WHO/ DAP/ 93. Geneva; 1993 , 1–87.
13. Von Elm E, Altman DG, Egger M, Pocock SJ et al. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *BMJ* [Internet]. 2007,335(7624):806–8.
14. Spoormaker VI , Initial validation of the SLEEP-50 Questionnaire. Behavioural Sleep Medicine, 2005 ;27: 227-246.
15. First MB, Spitzer RL, Williams JB ; Structured Clinical Interview for DSM-IV Axis I Disorders SCID-I, Clinician version. Washington DC, American Psychiatric Press, Inc.; (1997)
16. ICD-10 Classification of Mental and Behavioural Disorders, Diagnostic Criteria for Nonorganic insomnia.
17. M. M. Ohayon, M. Caulet, and P. Lemoine, Comorbidity of mental and insomnia disorders in the general population,Comprehensive Psychiatry, 1998; vol. 39(4) , 185–197.
18. Raphael E Ogbolu, Olatunji F Aina, Oluwole O Famuyiwa,Adebayo R Erinfolami et al ,A study of Insomnia among Psychiatric Out-Patients in Lagos Nigeria;,J Sleep Disorders Ther 1:104. doi:10.4172/2167-0277.1000104

19. Overcoming insomnia, Harvard Mental Health Letter ,2011, http://www.health.harvard.edu/newsletter_article/overcoming-insomnia
20. Maurice M. Ohayon, Epidemiology of insomnia: what we know and what we still need to learn, Sleep Medicine Reviews, 2002, Volume 6(2), 97–111
21. Jennifer K. Seltzer, Thomas L. Kurt;Drug Utilization Review of Sedative/Hypnotic Agents in Texas Medicaid Patients ; Journal of the American Pharmacists Association, 2000;40(4)
22. Huang WF et al,Patterns of sleep-related medications prescribed to elderly outpatients with insomnia in Taiwan. Drugs Aging. 2005;22(11):957-65.
23. Ma Y, Dong M, Mita C, Sun S, Peng CK, Yang AC, Publication analysis on insomnia: how much has been done in the past two decades? Sleep Med. 2015 , S1389-9457(15)00675-9.