



CODEN [USA]: IAJPBB

ISSN : 2349-7750

INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187

Online at: www.iajps.com

Research Article

TYPES OF SLEEP DISORDERS IN PATIENTS WITH STROKE- A PROSPECTIVE OBSERVATIONAL COHORT STUDY IN A TERTIARY CARE TEACHING HOSPITAL

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Article Received: March 2021

Accepted: March 2021

Published: April 2021

Abstract:

A sleep disorder, or somniphathy, is a slowly growing medical disorder of the sleep patterns of a person or animal. Some sleep disorders are serious enough to interfere with normal physical, mental, social and emotional functions. Sleep disorders majorly observed in the patients with stroke, people age 50 and above.

The methodology of this study involves, the subjects who satisfy the study category are taken into study and patient consent form was taken. Subject information was collected using data collection forms and details of the study were secured. Later the standard questionnaires are asked and filled before and after the treatment.

The collected data from the subjects with the help of questionnaires are assessed to determine the type of sleep disorders in subjects who are newly diagnosed with stroke (both ischemic and haemorrhagic).

Results obtained in our study concludes that Snoring is the most common type sleep disorder in patients with stroke followed by Day time sleepiness followed by Sleep talking followed by Sleep apnoea followed by Night terrors followed by Sleep paralysis followed by Bruxism, Restless leg syndrome, Nightmares and Narcolepsy.

However, sleep disorders are self-limiting in the early stages, so by educating bringing awareness about medication usage, lifestyle modification, dietary modifications, sleep hygiene and by counselling and providing patient information leaflets we observed there is a gradual decrease in symptoms. Increasing awareness and improving screening for sleep disorders plays a key role in the primary and secondary prevention of stroke and in improving stroke outcomes. ^{[2][3]}

Keywords: Sleep Disorders, Snoring, Day time sleepiness, Sleep talking, Sleep apnea, Night terrors, Sleep paralysis, Bruxism, Restless leg syndrome, Nightmares and Narcolepsy, Stroke.

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Please cite this article in press Nagula Prathyusha et al., *Types Of Sleep Disorders In Patients With Stroke- A Prospective Observational Cohort Study In A Tertiary Care Teaching Hospital., Indo Am. J. P. Sci, 2021; 08(04).*

INTRODUCTION:

Unrecognisable, modifiable slowly growing health problem facing from young generations to elders are sleep disorders. These sleep disorders are associated with the stroke directly or indirectly. Stroke and sleep disorders are interlinked, i.e sleep disorders act as risk factors of stroke and stroke also exacerbates or causes sleep disorders. There are different types of sleep disorders like snoring, nightmares, sleep talking, day time sleeping, narcolepsy, night terrors, bruxism, sleep apnoea, restless leg syndrome, sleep paralysis, insomnia, etc...

In this study we used Epworth sleep scale and berlin sleep quality scale along with self-designed and validated questionnaire. In this study we follow prospective observational cohort study. Recruited the subjects who satisfies including criteria and also after taking patient consent form. Epworth sleep scale and berlin sleep quality scale are the two standard scales helps in identifying the sleep disorder like obstructive sleep disorder, da time sleepiness, snoring etc... Sleep disorders are modifiable by maintaining sleep hygiene, reducing stress, by bringing awareness about sleep disorder and its effects.

Aim

To determine the type of sleep disorders effecting in patient with stroke.

Objectives

To assess and understand the type of sleep disorder in patients with stroke by self-designed and validated questionnaire.

METHODS:

This study was conducted after obtaining approval from Institutional Ethics Committee and Informed Consent from patients. Then patients were screened based on inclusion and exclusion criteria. Patients who satisfy inclusion criteria were included in the study. After including the subjects into the study, the data was collected in the designed data collection form. Initially the occurrence of stroke was assessed using the symptoms and imaging techniques. The self-designed and validated questionnaire was used to assess the type of sleep disorder in patients with stroke which consists of 15 closed ended questions which helps in diagnosis of the type of sleep disorder of patient. Later collected data was statistically analyzed using graph pads.

Data Tools Used

- Patient data collection form
- Berlin questionnaire
- Epworth questionnaire
- 15 closed end self-designed validated questionnaire

RESULTS:

Table 1 represents information regarding the gender. Majority of the subjects were found to be Males (170) compared to Females (70).

Table 1. Gender Vs No. of Subjects

GENDER	NUMBER OF SUBJECTS (N=240)
MALES	170(70.83%)
FEMALES	70(29.1%)

Table 2 represents association between diabetes mellitus and occurrence of sleep disorders which indicates that there is no significant association of diabetes mellitus in the occurrence of sleep disorders in patients with stroke.

Table 2. Diabetic Vs Non-Diabetic

DIABETES MELLITUS	NUMBER OF SUBJECTS (N=240)
YES	111(46.25%)
NO	129(53.75%)

This study found association between hypertension and occurrence of sleep disorders in patients with stroke. Majority of the subjects were found to be hypertensive (178) which indicates a positive association between hypertension and occurrence of sleep disorders in patients with stroke. Represented in Table 3

Table 3. HTN Vs Non-HTN

HYPERTENSION	NUMBER OF SUBJECTS(N=240)
YES	178(74.1%)
NO	62(25.83%)

Table 4 depicts the association of smoking and occurrence of sleep disorders in patients with stroke. The subjects who are smokers and non-smokers are equal which indicates that there is no significance of smoking for the occurrence of sleep disorders in patients with stroke.

Table 4. Smokers Vs Non-smokers

SMOKING	NUMBER OF SUBJECTS(N=240)
YES	120(50%)
NO	120(50%)

This study found the association of alcohol and occurrence of sleep disorders in patients with stroke. Majority of the subjects were alcoholics (125) which indicates that there is a positive association between alcohol and occurrence of sleep disorder in patients with stroke which is represented in Table 5

Table 5. Alcoholic Vs Non-Alcoholic

ALCOHOLIC	NUMBER OF SUBJECTS (N=240)
YES	125(52.0%)
NO	115(47.9%)

Table 6 depicts the results of the self-designed and validated questionnaire which consists of 15 closed ended questions. These questions help in identifying the type of sleep disorder of the subject. Majority of the subjects are suffering with Snoring (111) followed by Day time sleepiness (98), followed by Sleep talking (83) followed by sleep apnoea (66) followed by Night terrors (9) followed by Restless leg syndrome, Bruxism, Night mares, Narcolepsy which is graphically represented in Figure 1

Table 6. Type of Sleep Disorder Vs No. of Subjects

<i>TYPE OF SLEEP DISORDER</i>	<i>NUMBER OF SUBJECTS</i>
DAY TIME SLEEPINESS	98
SLEEP TALKING	83
SLEEP PARALYSIS	5
SLEEP APNEA	66
SNORING	111
REST LESS LEG SYNDROME	1
BRUXISM	1
NIGHT TERRORS	9
NIGHT MARES	1
NARCOLEPSY	1

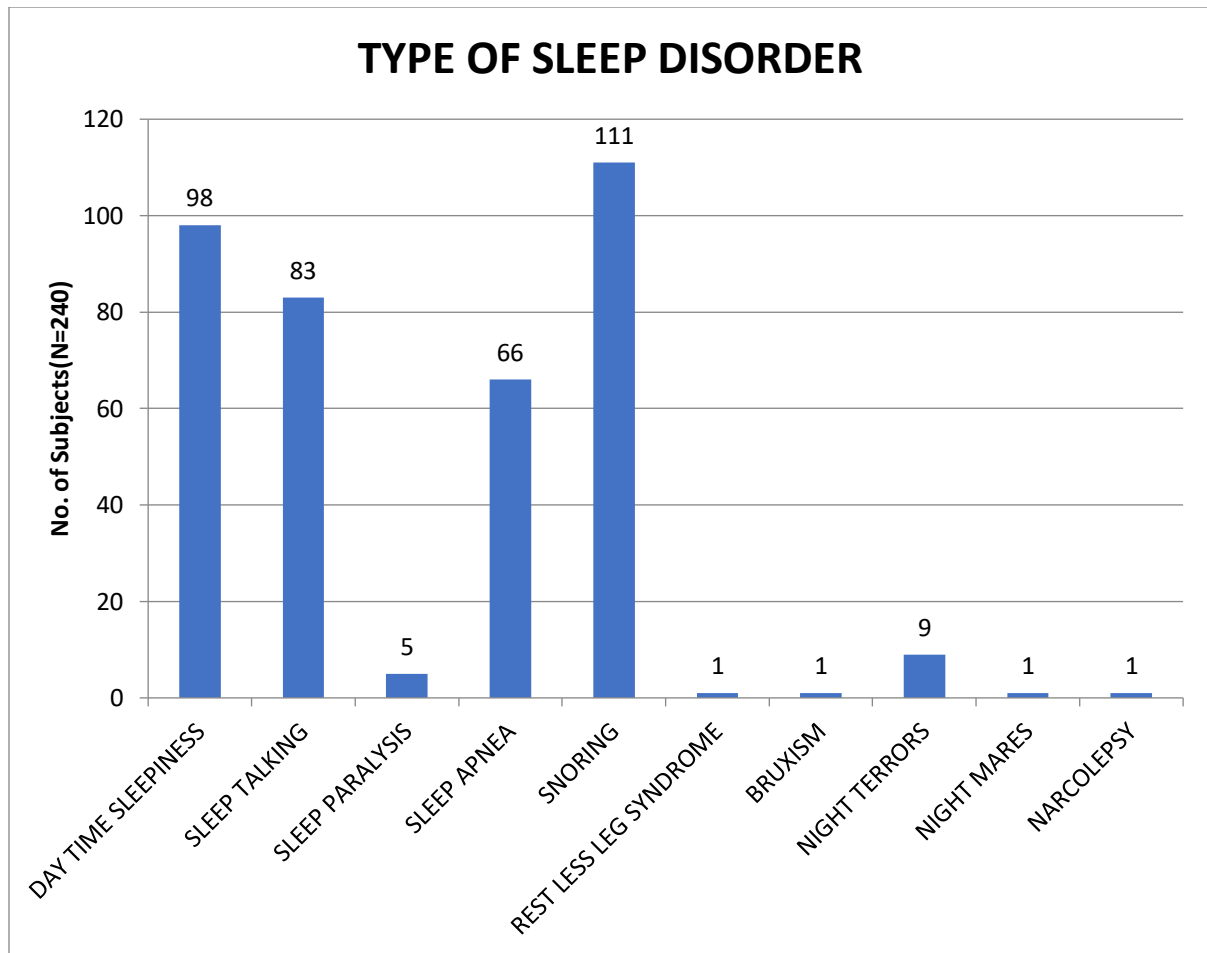


Figure 1. Graphical representation of types of sleep disorders in patients with stroke.

Table 7 depicts Epworth scale. The scale was subdivided into 0-7, 8-9, 10-15, and 16-24. Majority of the subjects score range is in between 0 to 7, followed by 8 to 9, 10 to 15, and 16 to 24.

Table 7. Epworth Scale

Epworth scale	Base line	Follow up
0 to 7	220	211
8 to 9	12	22
10 to 15	7	7
16 to 24	1	0

Table 8 depicts berlin scale. Berlin scale results majority of the patients are at low risk.

Table 8. Berlin Sleep Quality Scale

Berlin scale	Base line	Follow up
High risk	116	102
Low risk	124	138

DISCUSSION:

A non- experimental prospective observational cohort study was carried out on- “**TYPES OF SLEEP DISORDERS IN PATIENTS WITH STROKE- A PROSPECTIVE OBSERVATIONAL COHORT STUDY IN A TERTIARY CARE TEACHING HOSPITAL.**” 240 patients met the inclusion criteria and were included in the study. The data obtained was tabulated and analysed.

On reviewing the demographic data of the subjects, it was found that majority of the subjects were males compared to females. It was found that Hypertension and Alcoholism have an impact on the occurrence of sleep disorders in patients with stroke. Based on the results obtained our study revealed that majority of the subjects were suffering with Snoring, Day time sleepiness, Sleep talking, Sleep apnoea. These findings were in concordance with study done by **Zejneba Pasic, Dzevdet Smajlovic, Zikrija Dostovic, Bilijana Kojic, Senada Selmanovic**, conducted a prospective study *Incidence and Types of sleep disorders in patients with stroke (2011)*.^[1] Analysed 200 patients with acute stroke with the help of computerized tomography from a period of 1st August 2007 to 1st June 2008. Of the total 78% were with SD and 42% with very serious level of SD, 20% moderate and 16% medium to severe degree of SD with no statistical difference in frequency of sleep disorder in subjects with ischemic and haemorrhagic stroke. Sleep apnoea and snoring are the most common SD.^[1] Obstructive sleep apnoea syndrome increases risk of stroke and death from any because which is independent of other risk factors including hypertension.^[4]

Our study found that there is no significant association between Diabetes Mellitus and Smoking for the occurrence of sleep disorders in patients with stroke. Our study results reveal that majority of the patients with stroke suffer with sleep disorders.

CONCLUSION:

Based on the results obtained our study concludes that Snoring is the most common sleep disorder in patients with stroke followed by Day time sleepiness followed by Sleep talking followed by Sleep apnea followed by

Night terrors followed by Sleep paralysis followed by Bruxism, Rest less leg syndrome, Night mares and Narcolepsy. Majority of subjects have Hypertension and Alcoholism and therefore has a significant association in the occurrence of sleep disorders in patients with stroke. Smoking and Diabetes Mellitus do not have a significant association in occurrence of sleep disorders in patients with stroke.

However, sleep disorders are self-limiting in the early stages, so by educating bringing awareness about medication usage, lifestyle modification, dietary modifications, sleep hygiene and by counselling and providing patient information leaflets we observed there is a gradual decrease in symptoms.

Limitations

This study included only 240 patients to assess the “**TYPES OF SLEEP DISORDERS IN PATIENTS WITH STROKE –A PROSPECTIVE OBSERVATIONAL COHORT STUDY IN A TERTIARY CARE TEACHING HOSPITAL**”. This study has to be further extended with a greater number of patients to derive a better conclusion. Follow up period should be more to draw a better conclusion

ACKNOWLEDGMENTS

We would like to bring to light those who have helped us in the completion of our research work without which this work would not have reached its destination.

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