



ORIGINAL RESEARCH PAPER

Internal Medicine

A CROSS-SECTIONAL STUDY TO DETERMINE THE PREVALENCE OF INSOMNIA IN HYPERTENSIVE PATIENTS AT TERTIARY CARE HOSPITAL AT RIMS, KADAPA

KEY WORDS: (KFD) Kikuchi-Fujimoto disease, (SLE) Systemic lupus erythematosus, lymphoma, histopathology

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ABSTRACT

Background: Hypertension is a foremost global risk factor affecting mortality and disability-adjusted life years worldwide. The aim and objective of the study was to determine a region specific (urban and rural parts of south India) regarding ubiquity of insomnia, co-morbid medical conditions, lifestyle attributes, related sleep habits and sleep quality among Indian hypertensive patients.
Methods:All patients more than 18 years of age diagnosed with hypertension. Several characteristics were taken into consideration consisting lifestyle attributes, sleep habits and quality, medications etc concerning hypertension were analyzed. Athens Insomnia Scale (AIS) was used patients to asses Insomnia not identified in the past one month.
RESULTS: Out of a total of 250 cases included in the present study males constituted 142(56.8%) cases and females 108 (43.2%). Mean age in the present study was 58.6 yrs. 79 Of 250 (31.6%) patients had other co morbid conditions with most common condition being Diabetes Mellitus in 54 patients(68.3%). In the present study smokers constituted 28.6% cases, consuming Bidi and Cigarettes and Alcohol consumption was seen 14.4% cases. Out if a total of 104 cases with insomnia 89 (85%) were known cases of hypertension and 15 (15%) were newly diagnosed cases of hypertension. Prevalence of insomnia in already diagnosed cases of hypertension (89/218, 40.9%) and newly diagnosed cases (15/32, 46.1%). In the present study prevalence of insomnia in hypertensive patients was 41.6% more than once or twice a week.
CONCLUSION: Prevalence of insomnia among hypertensive patients was considerably higher than that reported in general Indian population in various studies.

INTRODUCTION

Hypertension is considered one of the paramount risk factors for heart disease and stroke, and a cardinal cause of mortality globally. Hypertension (HTN) is considered a significant public health burden in India.1 In India hypertension is directly responsible for approximately 57% of all stroke related deaths and 24% of all coronary diseases . Various studies have shown that in India approximately 31.5 million urban and 34 million rural population are suffering from hypertension.2,3

Insomnia, which is a very common sleep disorder is defined as difficulty in initiating or maintaining sleep or non-restorative sleep accompanied by day time consequences, is considered a major public health problem. In India, the prevalence of insomnia is found to vary between 14 to 18.7% in general population.4,5

The pathophysiology underlying the association between short sleep duration, insomnia and hypertension might be associated to inappropriate physiological arousal is as a result of alteration in stress system functions. The activation of the hypothalamic-pituitary-adrenal axis and the sympathetic nervous system associated with insomnia may predispose to hypertension development. Recent studies have shown that insomnia is associated with myocardial infarction and heart failure and was more frequent in women than in men.6 Hence it is crucial to consider insomnia and related sleep habits during hypertension management.

The risk factors include smoking, lifestyle attributes, irregular working shifts, sleep habits, antihypertensive medications (e.g. - blockers) etc associated with sleep disorders and insomnia. Sleep deprivation, short sleep duration and persistent insomnia are associated with increased risk of hypertension.

METHODS

Inclusion criteria

Adults (≥18 years of age) with newly diagnosed or known history of hypertension were included in the present study.

Exclusion criteria

Patients with history of psychiatric diseases and on psychiatric medications, co morbid conditions such as complications of

diabetes mellitus, elderly patients having symptoms of urinary obstructions, ongoing alcohol abuse and patients with symptoms of chronic/incapacitating pain were excluded from this study.

Pregnant or lactating women were also not included in this study.

STUDY DESIGN

This cross sectional epidemiological study conducted at RIMS kadapa over a period of 3 years from 2015 to 2018. Patients included in this study were interviewed for details of sleep quality and habits, lifestyle, intake of sleep inducing medications, hypertension duration and medication and substance abuse.

Insomnia was assessed by the way Of Athens Insomnia Scale (AIS), which is a psychometric apparatus regarding sleep induction, awakening during night, total sleep duration and quality, and sleepiness during day.

OBJECTIVES OF THE STUDY.

The prevalence of insomnia among hypertensive patients Hypertensive patients with insomnia and various lifestyle attributes and sleep habits associated with it.

The association between insomnia and the number of antihypertensive drugs Frequency of hypertensive patients on sleep inducing medications.

TABLE 1 DEPICTING BASELINE CHARACTERISTICS IN HYPERTENSIVE PATIENTS.
TABLE 1 DEPICTING BASELINE DEMOGRAPHIC CHARACTERISTICS

Characteristics	n=250
Male	142
Female	108
Mean age	58.6yrs
Mean BMI	29.4

Out of a total of 250 cases included in the present study males constituted 142(56.8%) cases and females 108 (43.2%). Mean age in the present study was 58.6 yrs. mean BMI of the patients

included in the present study is 29.4.

TABLE 2 DEPICTING CO MORBID CONDITIONS AND THEIR DISTRIBUTION.

CO MORBID CONDITION	Frequency .
Diabetes Mellitus	54 patients(68.3%)
Dyslipidaemia	18 patients(22.7%)
Coronary Heart Disease	8 patients(10.1%)
Thyroid disorder	5 patients (6.3%)
Respiratory illness	3 patients(3.7%)
Gastrointestinal disorder	3 patients (3.7%)

79 Of 250 (31.6%) patients had other co morbid conditions with most common condition being Diabetes Mellitus in 54 patients(68.3%) with 20 cases having more than one co morbid conditions.

LIFE STYLE CHARACTERSTICS IN HYPERTENSIVE PATIENTS

In the present study smokers constituted 28.6% cases, consuming Bidi and Cigarettes. The average consumption of inhalational tobacco products such as bidi is 8 with maximum consumption up to 26 per day, and Cigarettes with an average consumption of 9 per day to a maximum of 20 per day. Average duration of smoking is 24.6yrs.

Alcohol consumption was seen 14.4% (36 of 250) cases with 56% are social drinkers. The average duration of alcohol abuse was 21.2 yrs.

Beverages like tea and coffee consumption were also noted in the present study with tea consumption in over 88.5% cases with average of 4 cups per day to a maximum of 11 cups. Coffee consumption was noted in only 11.4% cases with an average of 3 cups per day to a maximum of 6 cups per day.

Out of a total of 250 patients in this study only 33.7% cases do physical activity ranging from brisk walking, yoga to vigorous aerobic activity.

LIFE STYLE CHARACTERSTICS IN HYPERTENSIVE PATIENTS WITH INSOMNIA

65.7% hypertensive patients who perform physical activity did not report insomnia. A total of 43.3% cases consuming tea show have no insomnia . in patients consuming alcohol insomnia was noted in 34.3% patients. Insomnia show good association in smokers in this present study with almost in 73.9% .

TABLE 3 DISTRIBUTION OF INSOMNIA AND LIFE STYLE CHARACTERSTICS.

Life style characteristics	PRESENCE OF INSOMNIA		
	YES	NO	TOTAL
Tobacco chewing	17(73.9%)	6(26.1%)	23
Alcohol consumption	9(34.3%)	19(67.8%)	28(11.2%)
Tea consumption	91(43.3%)	120(56.8%)	211(84.4%)
Coffee consumption	20(42.5%)	27(57.4%)	47(13.6%)
Daily exercise	33(34.3%)	63(65.7%)	96(38.4%)
Smoking			
Never smoked	82(46.4%)	86(63.6%)	178(71.2%)
Smoker	42(58.3%)	30(41.7%)	72(28.8%)

HYPERTENSIVE PATIENTS WITH INSOMNIA

Out of a total of 250 patients ,218 (87%)cases were known cases of hypertension , 32 were new patients diagnosed with hypertension. Insomnia was noted in 104 cases(41.6%). Out of total of 250 cases diagnosed with hypertension including known and newly diagnosed cases of hypertension 248 (99.4%)were on anti hypertensive medication. Out if a total of 104 cases with

insomnia 89 (85%) were known cases of hypertension and 15 (15%) were newly diagnosed cases of hypertension. Prevalence of insomnia in already diagnosed cases of hypertension (89/218, 40.9%) and newly diagnosed cases (15/32, 46.1%). In the present study prevalence of insomnia in hypertensive patients was 41.6% .

SLEEP HABITS AND QUALITY IN HYPERTENSIVE PATIENTS WITH INSOMNIA

Sleep related problems in the form of waking up during night to trouble getting back to sleep in 43.8% cases , final awakening earlier than desired in 41.2%, day time sleepiness 52% , not getting enough sleep 40.6% .

Sleep quality in hypertensive patients was found satisfactory 96 of 250 cases(38.4%), slightly unsatisfactory 79 of 250 cases(31.6%), markedly unsatisfactory 74 of 250 (29.6%) and very unsatisfactory 1 out of 250 cases(4%).

TABLE 4 DEPICTING SLEEP HABITS IN HYPERTENSIVE PATIENYS WITH INSOMNIA

Sleep related habits in hypertensive patients with insomnia	N=250	Less than twice a week	More than once a week
Do you wake up during the night with trouble getting back to sleep	109(43.8%)	71(65.1%)	38(34.9%)
Do you have final awakening earlier than desired	103(41.2%)	68(66.1%)	35(33.9%)
Do you have day time sleepiness	130(43.8%)	89(68.4%)	41(31.6%)
Are you not getting enough sleep	102(40.6%)	54(52.9%)	71(47.1%)

PATIENTS ON SLEEP INDUCING MEDICATION

204 of 250(81.6%) patients were not using any sleep induction medication. A total of 36 of 250 cases(14.4%) were on benzodiazepine therapy and 10 of 250 cases(4%) were on non benzodiazepine therapy.

TABLE 5 ASSOCIATION BETWEEN INSOMNIA AND ANTIHYPERTENSIVE TREATMENT

Anti-hypertensive treatment	PRESENCE OF INSOMNIA(%)		
	YES	NO	TOTAL
Diuretics	24(51.1%)	23(49.9%)	27(11.2%)
ACE inhibitor	6(43.9%)	8(57.1%)	14(5.6%)
Angiotensin II receptor blockers	33(31.5%)	75(69.5%)	108(43.2%)
Beta blocker	12(45.7%)	15(55.3%)	27(11.2%)
Cardio-selective	10(43.1%)	14(57.9%)	24 (9.6%)
Non-cardio-selective	2(66.7%)	1(33.3%)	3(1.2%)
Calcium channel blocker	48(64.3%)	26(35.7%)	74(34.8%)

DISCUSSION

In the present study to identify patients with hypertension for insomnia with the use of AIS. The AIS is a self-assessment psychometric instrument designed for quantifying sleep difficulty based on the ICD-10 criteria. It is measured by assessing eight factors amongst which first five factors are related to nocturnal sleep and last three factors are related to daytime dysfunction. In the present study prevalence of insomnia in already diagnosed cases of hypertension (89/218, 40.9%) and newly diagnosed cases (15/32, 46.1%) increased prevalence was noted in newly diagnosed hypertensives citing insomniac cases were under

diagnosed and missed in a significant proportion of hypertensive population and also indicate the lack of attention given by health care professionals. Hence a need to improve the identification and management of sleep related problems through educating the patients and health care professionals through evidence based treatment approaches.

Hypertension and insomnia often co exist, there is increasing evidence suggesting increased prevalence of insomnia and declining sleep quality and duration due to changing lifestyle attributes. In a study by Basta M et al reported that inadequate identification and treatment of insomnia up to 60% cases suffering from insomnia do not seek medical help. There is increasing need to improve management of insomnia as it is under reported and under treated entity.

The prevalence of insomnia ranging from 9.2% reported in Beijing study to 32.1% in Sweden. In a study conducted by Rajiv7 et al regarding prevalence of insomnia in Indian population found a prevalence of 47.2% similar results were noted in the present study with a prevalence of 41.6%. The results vary from those reported by Zhan Y6 et al who reported a prevalence of 9.2% as these studies were carried out with self reported insomnia who reached treating physicians whereas this study was carried out in Indian population concerning the prevalence of insomnia in hypertensive patients, similar results were noted by Prejbisz A et al who investigated the correlation between insomnia and various clinical parameters in essential hypertension patients in 432 patients of which 2017 patients based on AIS scale were identified as insomniacs approx 47.9% comparable to results in the present study.

The lifestyle attributes which contribute to insomnia in hypertensive patients were also evaluated in the present study. In the present study elevated likelihood of having insomnia was noted in smokers as 58% of smokers had insomnia. 8-12 There are various mechanisms by which nicotine may lead to sleep disturbances that characterize insomnia. Nicotine a CNS stimulant interferes with sleep which may affect the duration of time it takes for smokers to fall asleep. In a study by sabanayagam and Shankar13 reported smokers had twice more incidence of sleep related disorders compared to non smokers.

Exercise significantly improves the sleep of people with chronic insomnia and is an effective intervention for those who do not experience adequate sleep quantity or quality.14-16 In the present study 65.7% hypertensive patients who exercise reported no insomnia similar results were noted in a study by rajiv7 et al who reported 62.5% did not report insomnia.

Majority of hypertensive patients have insomnia and sleep disturbances which significantly affects the functioning capacity and is associated with day time sleepiness. Insomnia was noted in 104 of 250 patients (41.6%) in the present study. Quality of life in insomnia is significantly impaired affecting overall subjective sense of physical or psychological well-being.¹⁶

In the present study, approx half of the hypertensive patients with insomnia an sleep disturbances were on at least one anti-hypertensive drug. In the present study approx 54% patients on anti hypertensive drug therapy reported insomnia. The treatment of insomnia has two objectives that includes improving sleep quality and quantity and reducing daytime impairment. The patients were treated on benzodiazepine therapy for sleep induction with most frequent drug used was clonazepam in comparison to nonbenzodiazepine therapy.¹⁷⁻¹⁹

In the present study prevalence of insomnia was noted high amongst hypertensive patients those who seek out to treatment for hypertension. However, as a result of lack of awareness and health-seeking behaviour underestimated insomnia in Indian context.

CONCLUSION

The present study determines the prevalence of insomnia among

hypertensive patients who reached out to physicians for the treatment of hypertension and was considerably higher than the previously reported. Insomnia is largely underreported in Indian population, the present study highlights the lack of awareness among general Indian population and health care professionals and need for increased need patient and healthcare provider education and awareness. Further studies are required to assess various confounding factors regarding insomnia and hypertensive patients and lifestyle attributes for timely detection and treatment.

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