To Study the Clinical Profile Associated with Risk Factor and Co-Morbidities in Patients Diagnosed as Obstructive Sleep Apnea by doing Polysomnography at Rural Tertiary Care Hospital at Mullana, Ambala, Haryana

Tushar Nehra[1], Dinesh Mehta[2], Sameer Singhal[3], Abinav Dagarl[4]

ABSTRACT

Introduction: Obstructive sleep apnea is defined by the presence of repetitive episodes of upper airway obstruction during sleep. An AHI of equal to or greater than 5 events/h is commonly used to define obstructive sleep apnea with obstructive or mixed (rather than central) events comprising more than 50% of the total. Aims and Objectives: To study to clinical profile associated with risk factor and co-morbidities in patients diagnosed as obstructive sleep apnea by doing polysomnography study in a rural tertiary care hospital at Mullana, Ambala, Haryana

Material and Methods: In this study 30 patients with suspicion of Obstructive Sleep Apnoea were taken up and polysomnography was carried out on them. Diagnosis was made on the basis of (AHI) >5,that is more than 5 episodes per hour of cessation of breathing for at least 10 seconds. Once the diagnosis of Obstructive Sleep Apnea was established, then complete clinical profiling of patients was done, which included severity of obstructive sleep apnea based on AHI and co morbidities and risk factors associated with Obstructive Sleep Apnoea

Results: 1) Out of the total 30 patients enrolled for study the mean age of 4 (13.33%) patients was30.00 ± 11.135 range 25-34 years, mean age of 7 (23.33%) patients was39.71 ± 10.537 range 35-44 years, mean age of 12 (40%) patients was49.00 ± 10.094 range 45-54 years, mean age of 6 (20%) patients was60.00 ± 10.550 range55-64 years, and mean age of 1 (3.33%) patient was65.00 ± 0.00 range65-74 years. 2) Out from a total 30 patients under evaluation 29 (96.67%) were male and only 1 (3.33%)) was female patient. 3) The frequency of major complaints of patients suffering from sleep apnea were, sweating 1 (3.33%), Day Sleeping 18 (60%), SOB12 40%), Snoring 18 (60%), Laziness15 (50%), Sleeping while watching t.v.5 (16.67%), Inadequate sleep4 (13.33%) and Unfresh while driving 3 (10%. 4) Out of a total 30 patients under evaluation 16 (53.33%) patients were smokers and remaining 14 (46.67%) were non-smokers.

Conclusion: Complete clinical profiling along with associated risk factors and co-morbidities should be done in patients diagnosed as obstructive sleep apnea in order to effectively treat such patients and provide them a good quality of life.

Keywords: Obstructive Sleep Apnea (OSA), Apnea Hypopnea Index (AHI), Polysomnography

or severe according to the AHI. A common scheme is 5 to 15 (mild), 15 to 30 (moderate), >30 events/h (severe).[1]

Apneas are generally defined as an episode of breathing cessation lasting at least 10 seconds in duration, and can be classified as obstructive (in which there is no airflow despite continued respiratory effort), central (no airflow and no respiratory effort), or mixed (events initially appear central in origin, with respiratory effort occurring during the latter portion of the same episode).[2]

Clinical presentation of obstructive sleep apnea

1. Loud, habitual snoring
2. Witnessed apneas
3. Nocturnal awakening
4. Gasping or choking episodes during sleep
5. Nocturnal sweating
6. Unrefreshing sleep, morning headaches
7. Excessive daytime sleepiness
8. Irritability, memory loss, personality change[3]

Diagnosis

The diagnosis of sleep apnea can be made using polysomnography which record multiple channels of physiological data (EEG, EMG, EOG, pulseoximetry, airflow, respiratory effort and ECG). These tests simply measure oxygen saturation, nasal air flow and/or respiratory effort. The purpose of these tests is to evaluate how many episodes of apneas and hypopneas occur throughout the night.

The severity of sleep apnea is defined using the apnea-hypopnea index or the respiratory disturbance index, which represents the number of apneas and hypopneas per hour sleep. Severity of sleep apnea can be graded as mild sleep apnea when AHI:5 to 15 events per hour, moderate sleep apnea when AHI:15 to30 events per hour.[4]

Treatment

Patients who have specific abnormalities of the palate or jaw may benefit from specific surgery,but the majority of patients

[1]Post Graduate, [2]Associate Professor, [3]Professor and Head, [4]Post Graduate, Department of Respiratory Medicine, MMIMSR, MMU, Ambala, India

Corresponding author: Dr Abinav Dagar, #412, Hostel-9, MMIMSR, Mullana, Ambala, Ph- 8901207628, India

INTRODUCTION

Obstructive sleep apnea is defined by the presence of repetitive episodes of upper airway obstruction during sleep. An AHI of equal to or greater than 5 events/h is commonly used to define obstructive sleep apnea with obstructive or mixed (rather than centra l) events comprising more than 50% of the total.

Classification of obstructive sleep apnea

Obstructive sleep apnea is often classified as mild, moderate,

will require treatment with nasal continuous airway pressure (CPAP) ventilation, which has been shown to improve symptoms of sleep apnea in a range of studies.[5]

Aims and Objectives

To study to clinical profile associated with risk factor and co-morbidities in patients diagnosed as obstructive sleep apnea by doing polysomnography study.

MATERIAL AND METHODS

The study was conducted in the department if respiratory medicine, MMIMSR from Aug 2015 to Sep 2016. 30 patients diagnosed as OSA were included.

Inclusion criteria: Patients admitted in our hospital for polysomnography

Exclusion criteria
1. Crtically ill patients
2. Patients with end stage organ disease and malignancy
3. Pregnant women

Variables to be used

Epworth Sleepiness Scale: In contrast to feeling tired, how likely are you to dose off or fall asleep in following situations? (This refers to your usual life in recent times. Even if you have not done some of these things recently, try to work out how they would have affected you.) Use the following scale to choose the most appropriate number for each situation:

0 = Would never doze
1 = Slight chance of dozing
2 = Moderate chance of dozing
3 = High chance of dozing

Situation chance of dozing
1. Sitting and reading
2. Watching TV
3. Sitting inactive in a public place
4. As a passenger in a car for an hour without break
5. Lying down to rest in the afternoon when Circumstances permit
6. Sitting and talking to someone
7. Sitting quietly after lunch without alcohol
8. In a car, while stopping for a few minutes In traffic

Study Sequence: In this study 30 patients with suspicion of Obstructive Sleep Apnoea were taken up and polysomnography was carried out on them. Diagnosis was made on the basis of (AHI) >5, that is more than 5 episodes per hour of cessation of breathing for at least 10 seconds. Once the diagnosis of Obstructive Sleep Apnea was established, then complete clinical profiling of patients was done, which included severity of obstructive sleep apnea based on AHI and co morbidities and risk factors associated with Obstructive Sleep Apnea

STATISTICAL ANALYSIS

Microsoft office 2007 was used for the statistical analysis. Mean and percentages were calculated to interpret the data.

RESULTS

Out of the total 30 patients enrolled for study the mean age of 4 (13.33%) patients were 30.00 ± 11.135 range 25-34 years, mean age of 7 (23.33%) patients was 39.71 ± 10.537 range 35-44 years, mean age of 12 (40%) patients was 49.00 ± 10.094 range

45-54 years, mean age of 6 (20%) patients was 60.00 ± 10.550 range 55-64 years, and mean age of 1 (3.33%) patient was 65.00 ± 0.00 range 65-74 years (**Table-1**).

Out from a total 30 patients under evaluation 29 (96.67%) were male and only 1 (3.33%) was female patient (Table-2).

The frequency of major complaints of patients suffering from sleep apnea were listed in the table-3. These complaints were, sweating 1 (3.33%), Day Sleeping 18 (60%), SOB 12 (40%), Snoring 18 (60%), Laziness 15 (50%), Sleeping while watching T.V. 5 (16.67%), Inadequate sleep 4 (13.33%) and unfresh while driving 3 (10%).

Out of a total 30 patients under evaluation 16 (53.33%) patients were smokers and remaining 14 (46.67%) were non-smokers (Table-4)

DISCUSSION

Obstructive sleep apnea is defined by the presence of repetitive episodes of upper airway obstruction during sleep. An AHI of equal to or greater than 5 events/h is commonly used to define obstructive sleep apnea with obstructive or mixed (rather than central) events comprising more than 50% of the total.

Classification of obstructive sleep apnea

Obstructive sleep apnea is often classified as mild, moderate, or severe according to the AHI. A common scheme is 5 to 15 (mild), 15 to 30 (moderate), >30 events/h (severe).

Apneas are generally defined as an episode of breathing

Age range	Total mean age ± s.d.	Frequency	Percentage (%)
25-34	30.00 ± 11.135	4	13.33
35-44	39.71 ± 10.537	7	23.33
45-54	49.00 ± 10.094	12	40.00
55-64	60.00 ± 10.550	6	20.00
65-74	65.00 ± 0.00	1	3.33
Total		30	100
Table-1: Age range of various enrolled patients			

Gender	Frequency	Percentage (%)
Male	29	96.67
Female	1	3.3
Total	30	100
Table-2: Gender of patients		

Complaint	Frequency	Percentage (%)
Sweating	1	3.33
Day Sleeping	18	60.00
SOB	12	40.00
Snoring	18	60.00
Laziness	15	50.00
Sleeping while watching T.V.	5	16.67
Inadequate sleep	4	13.33
Unfresh while drive	3	10.00
Table-3: Complains of enrolled subjects		

Conditions	Frequency	Percentage (%)
Smoker	16	53.33
Non Smoker	14	46.67
Total	30	100.00
Table-4: Condition of patients		

International Journal of Contemporary Medical Research
ISSN (Online): 2393-915X; (Print): 2454-7379 | ICV (2015): 77.83 | Volume 4 | Issue 2 | February 2017

355

cessation lasting at least 10 seconds in duration, and can be classified as obstructive (in which there is no airflow despite continued respiratory effort), central (no airflow and no respiratory effort), or mixed (events initially appear central in origin, with respiratory effort occurring during the latter portion of the same episode).

Clinical presentation of obstructive sleep apnea

1. Loud, habitual snoring
2. Witnessed apneas
3. Nocturnal awakening
4. Gasping or choking episodes during sleep
5. Nocturnal sweating
6. Unrefreshing sleep, morning headaches
7. Excessive daytime sleepiness
8. Irritability, memory loss, personality change

In this study 30 patients fulfilling the inclusion and exclusion criteria, after clinical examination and required investigations were posted for polysomnography, diagnosed as OSA after which clinical profiling of the patients was done.

In our study the mean age of the patients was found to be in the range 45-55 years, unlike most studies which state that risk of developing OSA is higher among the old aged.[6]

In our study OSA was found to be more comman among the males like most studies which state the prevalence to be higher among the males.[6] Sex differences in upper airway shape and genioglossal muscle activity during the awake state, in craniofacial morphology, and pattern of fat deposition have been proposed to account for a higher male risk of OSA.[7]

In our study most comman symptoms were found to be Snoring and Daytime sleepiness followed by shortness of breath. A number of epidemiological studies have evaluated the relationship between snoring and daytime sleepiness and almost all have found a significant association. As snoring is a strong marker of the presence of OSA, the association of snoring with sleepiness might be due to their joint association with OSA; however, several studies suggest that snoring is independently associated with excessive sleepiness.[8]

In our study among 30 patients 53.33 were found to be smokers. Smoking is often mentioned as a risk factor for OSA, but few studies have been conducted to investigate this association. There may be several mechanisms by which smoking affects OSA, including smoking-related increases in sleep instability and airway inflammation.[8] Several cross-sectional epidemiologic studies of OSA[9,10] have found positive associations with cigarette smoking. In the only epidemiologic study to focus on smoking, Wetter and coworkers found that current smokers were three times (95% CI, 1.4 to 6.4) more likely to have OSA than never-smokers.[11]

CONCLUSION

This study was conducted in dept of respiratory medicine, mullana. Prospective analysis of cases of obstructive sleep apnea confirmed by overnight polysomnography was studied. Observation of our study showed mostly patients were in group between 35-54 age of OSA disorders.Males were in majority than in females.OSA is a common sleep disorder that can present in variety of ways. Complete clinical profiling along with associated risk factors and co-morbidities should be done in patients diagnosed as obstructive sleep apnea in order to effectively treat such patients and provide them a good quality of life.

REFERENCES

1. Berry RB, Brooks R, Gamaldo CE, et al. The AASM Manual for the Scoring of Sleep and Associated Events: Rules, Terminology and Technical Specifications, Version 2.0.2. Darien,Illinois: American Academy of Sleep Medicine; 2013.
2. Sleep-related breathing disorders in adults: recommendations for syndrome definition andMeasurement techniques in clinical research. The Report of an American Academy of SleepMedicine Task Force. Sleep. 1999;22:667–689.
3. Tab 199-2, page no. 3264, fifth edition fishman's pulmonary diseases and disorders.
4. Alferd P. Fishman, JackA. Elias, Jay A. Fishman. Textbook of Fishman's Pulmonary Diseases and Disorders. Fourth Edition,New York:McGraw-Hill; 2008.p.1679-735.
5. John Wilding and John O'Reilly. Sleep Apnoea, Obesity, Diabetes and the Metabolic Syndrome. Eur Endocrine Dis. 2007;1:72-5.
6. Young T, Peppard PE, Gottlieb DJ. Epidemiology of obstructive sleep apnea: a population health perspective. American journal of respiratory and critical care medicine. 2002;165:1217-39.
7. Waldron I. What do we know about causes of sex differences in mortality? A review of the literature. Population Bulletin of the United Nations. 1985;59.
8. Young T, Peppard PE, Gottlieb DJ. Epidemiology of obstructive sleep apnea: a population health perspective. American journal of respiratory and critical care medicine. 2002;165:1217-39.
9. Jennum P, Hein HO, Suadicani P, Gyntelberg F. Cardiovascular risk factors in snorers: a cross-sectional study of 3,323 men aged 54 to 74 years. The Copenhagen Male Study. Chest. 1992;102:1371–1376.
10. Jennum P, Sjol A. Snoring, sleep apnoea and cardiovascular risk factors: the MONICA II Study. Int J Epidemiol. 1993;22:439–444.
11. Wetter DW, Young TB, Bidwell TR, Badr MS, Palta M. Smoking as a risk factor for sleep-disordered breathing. Arch Intern Med. 1994;154:2219–2224.