



Study of the Predictors and Risk Factors for Obstructive Sleep Apnea

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Abstract

Introduction: Obstructive sleep apnea (OSA) is a sleep disorder characterised by recurrent episodes of upper airway collapse during sleep with persistent respiratory effort. OSA is associated with various risk factors & comorbidities.

Method: The Cross sectional, Descriptive hospital based study was undertaken among symptomatic OSA patients in the pulmonary medicine department at C.U. SHAH Medical College and hospital, Surendranagar. After recording of Important Anthropometric measurements patients were evaluated for Excessive Daytime Sleepiness using ESS scale then enrolled for Polysomnography.

Result: In This study OSA observed most commonly in Overweight Male patients followed by Neck circumference & other associated Comorbidities.

Conclusion: It can be concluded that Risk factors for OSA along with co- morbidities were significantly present. These results combined with the fact that risk factors are easy to interpret and their role in consequences of OSA. It is noteworthy to evaluate for risk factors of OSA for early diagnosis and delay complications.

Keywords: OSA- Obstructive Sleep Apnea, PSG- Polysomnography, BMI-Body Mass Index, WHR-Waist Hip Ratio, ESS score- Epworth Sleepiness Score, AHI-Apnea Hypopnea Index, NA-Not Applicable

INTRODUCTION

Obstructive Sleep Apnea is a sleep disorder characterised by Recurrent episodes of upper airway collapse during sleep with persistent respiratory effort 1 2 3 .Non modifiable risk factors for OSA are:- Age5, Craniofacial abnormality, Ethnicity, Genetic predisposition. Modifiable risk factors are:-Obesity 4, Alcohol consumption 5, Smoking, Sedative medication, Menopause4. Clinical features are Snoring, Chocking, Witness apnea, Morning Headache, Day time sleep, Restlessness, Poor concentration5. Polysomnography (PSG) is required to detect frequency of apneic and hypopneic event required to diagnose OSA.

METHODOLOGY:-

This study was carried out from Jan. 2019 to Sept. 2020 at C.U. SHAH Medical College and Hospital, Surendranagar. After Approval from Institutional Ethics Committee. It involves patient >18 yrs of age, Associated with comorbidities and willing to participate in study & Symptoms of OSA were Enrolled. It is Cross sectional, Descriptive hospital based study. History & Complete systemic examination was carried out and Patients were evaluated for for Excessive Daytime Sleepiness using ESS scale and were categorised into Normal, Borderline, High risk. Important Anthropometric

Measurements were recorded; Weight, Height, Body Mass Index, Neck circumference, hip circumference,

Waist circumference. Diagnosis was done by level 2 polysomnography.

RESULTS:-

TABLE 1: Frequency distribution of BMI

BMI	Frequency	Percentage (%)
18.5-24.9(Normal)	1	2
25-29.9 (pre obese)	9	18
30-34.9 (obese I)	14	28
35-39.9 (obese II)	17	34
>40 (obese III)	9	18
Total	50	100

TABLE 2: Frequency distribution of neck circumference

Neck circumference	Frequency	Frequency	Percentage	Percentage
	Male	Female	Male (%)	Female (%)
>40	24	15	80	75
<40	6	5	20	25
Total	30	20	100	100

TABLE 3: Frequency distribution of WHR

Waist hip ratio	Frequency	Frequency	Percentage	Percentage
	Male	female	Male (%)	Female (%)
>=0.9	28	18	93.3	90
<=0.9	2	2	6.7	10
Total	30	20	100	100

TABLE 4: Frequency distribution of Mallampati score

Mallampati Score	Frequency	Percentage (%)
Grade 1	6	12
Grade 2	15	30
Grade 3	20	40
Grade 4	9	18
Total	50	100

TABLE 5: Frequency distribution of ESS score

ESS Score	Frequency	Percentage (%)
Normal 0-9	20	40
Borderline 10-12	12	24
Abnormal >12	18	36
Total	50	100

TABLE 6: Frequency distribution of AHI score

AHI Score	Frequency	Percentage (%)
<5	3	6
>=5-15	10	20
>=15-30	12	24
>=30	25	50

TABLE 7: Frequency distribution of Comorbidities

Risk factors	Frequency males	Frequency females	Percentages male (%)	Percentage Females (%)
Alcohol	12	0	43.4	0
Menopause	NA	13	NA	65
Hypothyroidism	0	7	0	35
Smoking	17	0	56.7	0

DISCUSSION:-

The present study was conducted in department of pulmonary medicine. It is hospital based cross sectional study, 50 patients were included in study.

The aim of study was to evaluate the prevalence of risk factors and comorbidities. In study group patients were evaluated for symptoms, general examinations involving anthropometric measurement, blood investigations, chest x-ray & ECG. Diagnosis of OSA

was done by using level II polysomnography. Results and observation of our study are as 98% patients were overweight & above [TABLE 1]. Higher neck circumference was seen in 80% male and 75% in females [TABLE 2]. Higher WHR was seen in 93.3% male and 90% in females [TABLE 3]. 58% patients had higher Mallampati score of 3 or 4 [TABLE 4]. Excessive day time sleepiness evaluated by ESS score of 10 or more was present in 84% patients & snoring was present in 94% patients [TABLE 5]. In study group, 50% patients had severe OSA & 24% patients had moderate OSA as per AHI score [TABLE 6]. Other risk factors such as alcoholism and smoking were significantly present in male patients while 65% female patients had Menopause and hypothyroidism was in 35% female in study [TABLE 7].

CONCLUSION:-

The risk factors for OSA along with co morbidities were significantly present. These results combined with the fact that risk factors are easy to interpret and their role in consequences of OSA. It is noteworthy to evaluate for risk factors of OSA for early diagnosis and delay complications.

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