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IMPACT OF OBESITY ON OBSTRUCTIVE SLEEP APNEA

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ABSTRACT

Aim: To assess the impact of obesity on obstructive sleep apnea (OSA) and to describe the frequency in sleep apneawithout a primary sleep complaint. **Methods:** A total of 50 patients were included in this survey. The questionnaires were filled out during the interview. The survey comprises of questions on snoring behavior, individual feeling, presence of obesity. The diagnosis of OSA starts with routine health check up like presence of obesity, congestive heart failure, stroke, fibrillation and type II diabetes. BMI may be employed widely for classifing genral obesity. **Results:** Out of 50 participants 21 were female and 29 were male. The participants were asked to were fill the berlin questionnaires. It was observed that high number of female participants comes under the category 1 which is snoring and among the male participant it was observed the same. When observed all together it was observed that high number of participant were obese. **Conclusion:** Successful weight loss may improve the AHI in obese patients with OSA. Weight loss should be recommended for all OSA patients. Weight loss should be combined with a primary treatment for OSA because of low success rate of dietary programmes and the low cure rate by dietary approach alone.

KEYWORDS: obstructive sleep apnea, snoring, congestive heart failure, stroke.

INTRODUCTION

Obesity is the well recognized main factor for OSA. OSA is defined by occurrence of daytime sleepiness, loud snoring, witnessed breathing interruptions or awakening due to gas or choking in the presence of atleast 5 obstructive respiratory events per hour of sleep. Currently sleep apnea is tend to increase as one of the sleep disorder which is fatal, serious and dangerous. OSA is a sleep disorder characterised with intermittent episodes of either complete breathing cessation for period of seconds or more (apnea) or sigificant reduction in breathing amplitude (hypopnea). OSA depend on apnea/hypopnea index (AHI), the total number of apnea and hypopnea during per hour of sleep (AHI) can be classified according to 5 or lower is normal, 5-15 in mild and 30or more as severe OSA patient. The severity of hypoxemia and hypercapmia is associated for the indication of OSA where oxyheamoglobin saturation drops to 95% in mild OSA patient and 80% drop below in severe cases.

The risk factor in OSA mainly include obesity, craniofacial abnormalities smoking, short neck and meno pause in women. Obesity is a main risk factor of OSA since 60-90% of obese patients sufferd from OSA and it show the strong correlation between BMI and OSA. The adherence of OSA with obesity makes cardio-vascular more risk challenging.

In Sleep Apnea, obesity plays an important role as an activating factor and higher BMI is associated with greater severity of OSA. The narrowing or collapsing of upper airway causes the loss of upper airway muscle activation in OSA. The fat distribution on upper airway in the posterior tongue is the main pathogenic factor for OSA. The upper body and visceral adiposity have been related for the reduction in lung function including total lung capacity, forced vital capacity and forced expiratory volume.

The physiological and mechanical effects in patients with OSA might be due to fat distribution. Increased hypercapnic and hypoxic effects are the significant responses in OSA patients. During NON-REM sleep, hypoventilation may develop in supine position if they had higher ventilatory response to apneas when they went back to sleep. Because of prolonged hypoventilation upon returning sleep this may leads to ventilating stability. The prevalence of EDS in OSA is 16 to 22% found in 2–5 in epidemiologic samples, and is the most common complaint in clinical samples.

STUDY DESIGN

The study included 50 untreated research participants in whom OSA had been diagnosed

PROFORMA 1 -Patient informed consent form

PROFORMA 2-Patient details –Name, Age, Sex, Occupation, Social History, (SH), Past Medical History

(PMH), BMI height, weight, waist circumference, and hip circumference.

PROFORMA 3- Berlin questionnaire were followed for the assesment of OSA.

PATIENT SELECTION

PATIENT INCLUSION CRITERIA - The participant is the age of 18-50 years for both sex.

PATIENT EXCLUSION CRITERIA- The participant with the history of ongoing infection, auto immune dieases, insomnia, narcolepsy. The subject with extreme sleep schedule were excluded from the study.

METHODOLOGY

The study included 50 untreated research participants in whom OSA had been diagnosed 27 male (54%) and 23 female (46%). The subjects were measured demographic information of height, weight, waist circumference, and hip circumference.

General obesity: The height and weight were measured to calculate BMI and to define BMI <25kg/m2- normal weight, overweight BMI (25-29.9kg/m2), obesity (BMI ≥27kg/m2). We followed Berlin questionnaire for the assesment of OSA which is divided into 3 category. Category 1 is about snoring behaviour, category 2 is about individual's feelings of fatigue, tiredness and day-time sleepiness, and category 3 is about the presence of obesity. The berlin questionnaire is used to assess the OSA by demograpic information about sleep related questions and BMI. The data's of BMI was calculated, and percentage of snoring, frequency to be fatigue and B.P for those who are leading sedentary lifestyle, smoking, cardiac patient and type II diabetes were calculated

RESULTS AND DISCUSSION

In this study 50 participants were selected. The participants were asked to were fill the berlin questionnaires. Out of 50 participants 27 male and 23 were female. The questionnaires was divided in three categories in which categorie-1 is about snoring behaviour, category 2 is about individual's feelings of fatigue, tiredness and day-time sleepiness, and category 3 is about the presence of obesity

Out 21 female 12 (57.14%) participants comes under category 1, 9 (42.86%) participants comes under category 2.

Table 1: Category 1 And 2 In Female Participants.

CATEGORY	NO. OF FEMALE PARTICIPANTS (N=21)	PERCENTAGE OF PARTICIPANTS
CATEGORY-1	12	32.56%
CATEGORY-2	9	22.86

Out 29 male 20 (65.84%) participants comes under category 1, 9 (42.86%) participants comes under category 2. It was found that obese participant were high in numbers.

Table 1: Category 1 And 2 In Male Participants.

CATEGORY	NO. OF MALE PARTICIPANTS (N=29)	PERCENTAGE OF PARTICIPANTS
CATEGORY-1	20	65.84%
CATEGORY-2	9	**42.86%**

The category 3 was observed all together in female and male participants and it was observed that 0 patients are underweight, 6 patients were normal in their BMI, 16 were overweight and remaining 26 patients were obese.

DISTRIBUTION BASED ON BMI

BMI	CATEGORY	NO.OF PARTICIPANTS	PERCENTAGE OF PARTICIPANTS
19	Underweight	0	0
19-25	normal	6	12.5
25-30	Overweight	16	33.3
30	obese	26	54.1

CONCLUSION

The evidence suggests that obesity is one of the factors associated with the health outcome of OSA. These findings suggest that obesity is a major contributor to sleep apnea and co-occurring cardiovascular diseases, diabetes; OSA is the chronic diseases requiring long term management. The untreated OSA may lead to increased mortality.

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