The Egyptian Journal of Hospital Medicine (January 2018) Vol. 70 (6), Page 1035-1038

Prevalence of High Risk Group of Obstructive Sleep Apnea Among Western Region Population in Saudi Arabia

Mohammed Abdullah Assiri (1), Habibullah Ammar Hussain M (2), Abdulaziz Saud Aljuaid (1), Saud Mohammed Aleisa (1), Mohammed Ateih Alsofyani (1), Mamdouh Alshareef (3)

1. College of Medicine, Taif University, 2. King Abdullah Medical City in Makkah, 3. Alhada Military Hospital in Taif

Corresponding author: mohammed abdullah assiri, Phone number: +966507546239,E-mail : assiri-x-07@hotmail.com

ABSTRACT

Background: Obstructive sleep apnea is a chronic morbid condition characterized by frequent attacks of upper airway collapse during sleep leading to interrupted sleep cycle and daytime fatigue.

Objectives: Assessment of the most affected group of adults by obstructive sleep apnea disorder in western area of Saudi Arabia and help them to get a good quality of life.

Methods: Cross sectional study involving 214 adults with age between 18 and 80 years old in the western area of Kingdom of Saudi Arabia. **Results:** There was no relationship between specific genders with high risk of OSA, while there was strong relationship between participants from male gender with low risk of OSA. Also, there was no relationship between age and high risk of having OSA among our participants. In addition, there is no relationship between age and low risk of having OSA among our participants. There was a relationship between overweight participants from both gender and high risk of having OSA, while there was relationship between underweight participants from both gender and low risk of having OSA.

Conclusion: Our study showed that around 28% of populations are in high risk group of having OSA. Also, sleep apnea in older patients is less severe than sleep apnea in the young.

Keywords: High risk, OSA, low risk, gender, age.

INTRODUCTION

Obstructive sleep apnea (OSA) is a chronic condition characterized by frequent episodes of upper airway collapse during sleep. It affects nocturnal sleep quality resulting in sleeplessness and in turn daytime fatigue which is widely acknowledged [(1)].

OSA prevalence ranged from 3.7% to 97.3%. Male gender, older age, a higher BMI and waist to hip ratio, greater neck circumference, arterial hypertension, smoking, snoring and daytime sleep were associated with OSA [(2)]. Strong cohort studies indicated that undiagnosed obstructive sleep apnea, with or without symptoms, is independently associated with increased likelihood of hypertension, cardiovascular disease, stroke, daytime sleep, motor vehicle accidents, and diminished quality of life. Strategies to decrease the high prevalence and associated morbidity of obstructive sleep apnea are critically needed [(4)].

Aim of our study is to discover the most affected group of adults by obstructive sleep apnea disorder in western area of Saudi Arabia where there was no previous studies done in such place.

METHODOLOGY

Cross sectional study with 214 adults with age between 18 and 80 years old. The study was approved by the King Faisal Hospital in Taif, Saudi Arabia. The data were collected in the western area of Kingdom of Saudi Arabia, by distributing a special questionnaire form (berlin questionnaire) to the community which was included. Questions

about the obstructive sleep apnea based on the literature review and its recommendations. High risk was considered when there are 2 or more categories of the score are positive, while low risk was considered if there is only 1 or no categories of the score is positive. Survey items addressed the presence and frequency of snoring behavior, wake and sleep or fatigue times, and history of obesity or hypertension. Patients with persistent and frequent symptoms in any two of these three domains were considered to be at high risk for sleep apnea. We included male and female between 18 to 80 years old and live in western area of Saudi Arabia and excluded who were under 18 years old or above 80 years old and don't live in western area of Saudi Arabia. Statistical analysis was performed using the (SPSS softwear v20). **The study was done after approval of ethical board of King Abdulaziz university**.

RESULT

Number of our participants was 214 participants, 117 participants (54.7 %) of them were males and 97 participants (45.3 %) were females (table 1). 137 of our participants from age of 18-30, 16 participants from age of 31-40, 11 participants from age of 41-50, 22 participants from age of 51-60, 20 participants from age of 61-70, 7 participants

Received: 15/12/2017 DOI: 10.12816/0044358 Accepted: 25/12/2017

from age of 71-80, and only one participant his age was above 80 (table 2).

As regards BMI of our participants for both gender, 10 participants (4.7 %) were underweight, while 87 of participants (40.7 %) were of normal weight , while 117 of participants (54.7 %) were overweight (Figure 2). BMI of our male participants, 4 (3.4 %) was underweight, while 43 (36.8 %) were of normal weight, and 70 (59.8 %) were overweight (Figure 4).

We found that 78 (36.4 %) of our participants in both gender are complaining of hypertension , while 111 (51.9 %) of our participants in both gender are not complaining of hypertension , while 25 (11.7 %) of them they don't know if they have high blood pressure or not (Figure 5). We found that 60 of our participants of both gender (28 %) are at high risk, while 154 of our participants of both gender (72 %) are at low risk (Figure 6). Also, we found that there is no relationship between specific gender and high risk of OSA, while there was a strong relationship between participants from male gender and low risk of OSA with p-value 0.001.In addition we detected that there was no relationship between age and high risk of and OSA among our participants with p-value 0.112. Also, there was no relationship between age and low risk of having OSA among our participants with p-value 0.108

Besides, we found that there was a relationship between overweight participants from both gender and high risk of having OSA with p-value 0.032. Also, there was a relationship between underweight participants from both gender and low risk of having OSA with p-value 0.038

We found that there was no relationship between hypertension and low risk of having OSA among our participants in both gender with p-value 0.471. Also, we found that there was no relationship between hypertension and high risk of having OSA among our participants in both gender with p-value 0.420.

Table (1): Showing age groups of our participants

Gender	Frequency
Male	117
Female	97
Total	214

Table (2): Showing gender of our participants

Age	Frequency
18-30	137
31-40	16
41-50	11
51-60	22
61-70	20
71-80	7
Above 80	1
Total	214

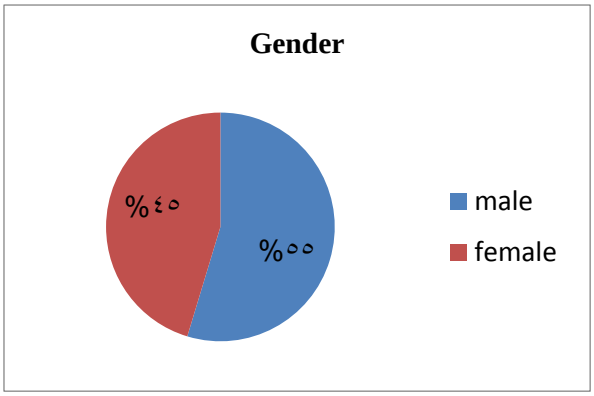

Figure (1): shows gender of participants

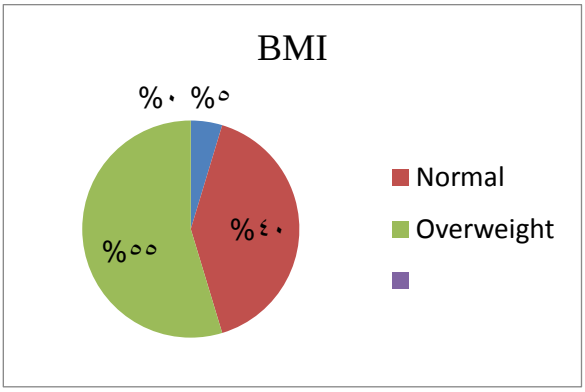

Figure (2): shows body mass index for our participants from both genders

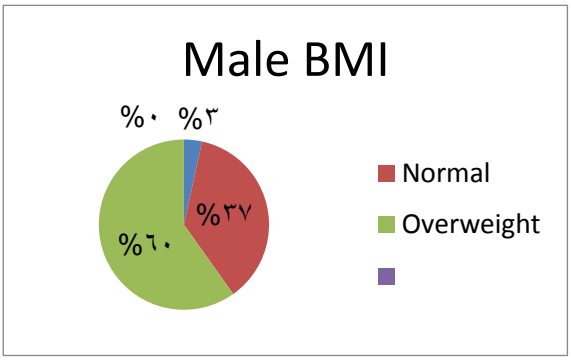

Figure (3): shows body mass index for our male participants

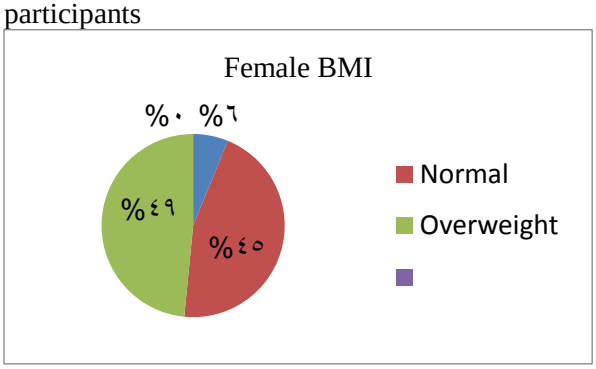

Figure (4): shows body mass index for our female participants

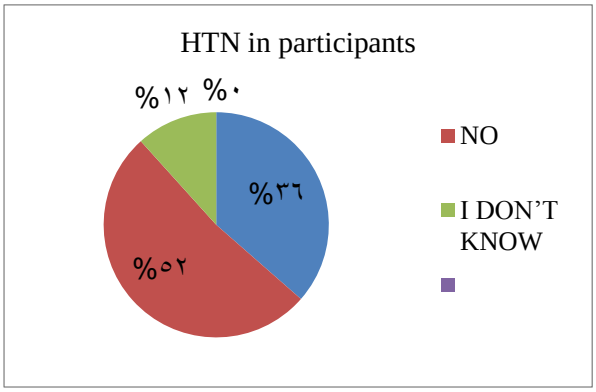

Figure (5): shows if our participants they know if they have hypertension or not

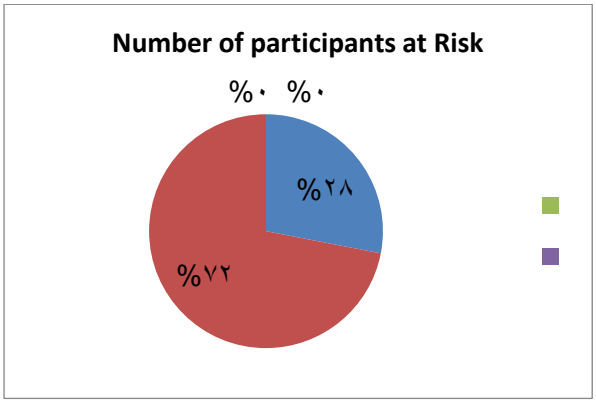

Figure (6): shows the number of our participants from both genders at risk of having osa

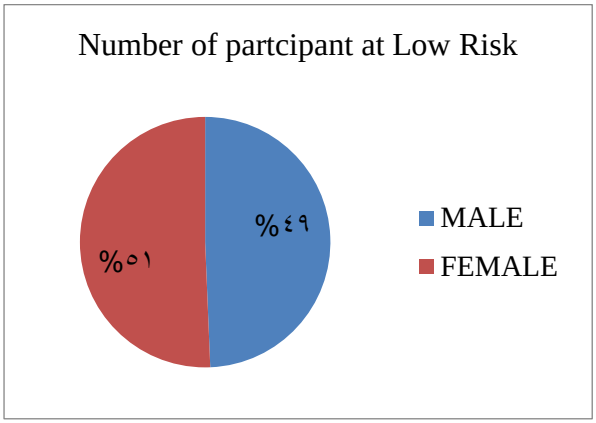

Figure (7): shows number of our participants from both genders at low risk of having osa .

DISCUSSION

Obstructive sleep apnea (OSA) is a chronic condition characterized by frequent episodes of upper air way collapse during sleep. Its effect on nocturnal sleep quality and ensuing day time fatigue and sleep are widely acknowledged. 64% of our participants were under 30 years old and remaining 36% were above 30 years old.

The relationship between the risk factors that are associated with having OSA (using berlin questionnaire) wasn't strong in studied high BMI group (54.7% of our participants). Only 28% of our studied group are at high risk of having OSA ,while in other study it was between 3% and 97.3% were having high risk factors to have OSA[(2)].

Also, we couldn't find relationship between high blood pressure and increase the risk of OSA in our study group although OSA may lead to hypertension.

An important additional finding observed in our study, which further supports the model of two types of sleep apnea, is that the most severe apnea tends to occur in the young, whereas apnea in the elderly appears to be less severe. Our data support the hypotheses that OSA increases in prevalence to about age of 55 years, after which it fails to increase or decreases, depending on the diagnostic criteria employed which is in agreement with the findings on the relationship between age and severity of sleep apnea that sleep apnea in older patients is less severe than sleep apnea in the young[(3)].

This study confirms that OSA is very prevalent in the general population and that the frequency of this disorder increases with age. The present results are strengthened by the very high response rate of 81%.

Our findings reported that there was habitual snoring in 35% of the population, breathing pauses in 6%, and daytime hypersomnolence in 18% which are consistent with those found by others and indicated that symptoms of OSA were common in the general population[(5)]. In summary, we found that the prevalence of OSA in the general population was high and increased with age in both sexes. Habitual snoring and breathing pauses were significantly associated with OSA. This study adds evidence for a link between OSA and hypertension.

This study has several limitations that need to be addressed. Most of the study participants were pre university level. So, their knowledge about obstructive sleep apnea and its risk factors might be lack. Secondly the way to get the information from participants was through electronic questionnaire by mobile and some of it was done manually through the clinics .

CONCLUSION

The current work updates our knowledge about the prevalence of high risk group of OSA in western region in Saudi Arabia. It showed around 28% of population is in high risk group. Further studies are required among population of OSA in Saudi Arabia to evaluate and avoid the risk factors for such cases and improve their sleep and their patterns of life.

REFERENCES

1- **Smith T, Wilkinson V and Kaplan E (1989):** Group A streptococcus-associated upper respiratory tract infections in a day-care center. Pediatrics, **83**: 380–384.

2- **Falck G and Kjellander J (1992):** Outbreak of group A streptococcal infection in a day-care center. Pediatr Infect Dis J., **11**: 914–919

3- **Siegel A, Johnson E and Stollerman G (1961):** Controlled studies of streptococcal pharyngitis in a pediatric population, 1: factors related to the attack rate of rheumatic fever. N Engl J Med., **265**: 559–565.

4- **Denny F, Wannamaker L, Brink W, Rammelkamp Cand Custer E** (**1950**): Prevention of rheumatic fever: treatment of the preceding streptococcal infection. JAMA., **143**: 151–153.

5- **Dajani A** (**1991**): Current status of nonsuppurative complications of group A streptococci. Pediatr Infect Dis J., **10** (suppl): S25–S27.

6- **Carapetis J, Steer A , Mulholland E and Weber M** (**2005**): The global burden of group A streptococcal disease. Lancet Infect Dis., **5**: 685–694.

7- **Lee G and Wessell M** (**2006**): Changing epidemiology of acute rheumatic fever in the United States. Clin Infect Dis., **42**: 448–450.

8- **Al-Sekait M, Al-Sweliem A and Tahir M** (**1990**): Rheumatic Heart Disease in School children in Western District, Saudi Arabia. The Journal of the Royal Society for the Promotion of Health, **110**(**1**): 15-16.