



Prevalence of Snoring and High Risk of Obstructive Sleep Apnea among Medical Doctors in Benue State Nigeria

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ABSTRACT

Background: Snoring and obstructive sleep apnea (OSA) are both recognized causes of morbidity and mortality. There are some few studies in Nigeria. However the prevalence amongst doctors is not known.

Aim: To determine the prevalence of snoring and risks for obstructive sleep apnea among medical practitioners in Benue state..

Study Design: This was a cross-sectional descriptive study carried out during the annual general meeting of the Benue state branch of the Nigeria Medical Association, (the professional association of all medical doctors in Nigeria) from 28-29th July 2016. There were 232 doctors in attendance. Instrument used was the Berlin score questionnaire. Information on demographics, snoring, hypertension and BMI was analysed using Statistical Package for Social Sciences (SPSS) 17.0.

Results: Out of 140 questionnaires distributed to participants, 73 respondents returned completed copies giving a response rate of 52%. There were 64 males and 8 females (ratio 8:1). The age range was 25-69 years. Most (60.1%) were within the range of 31-50 years. The mean Body Mass Index (BMI) was 28.2 ± 4.5 . Snoring was present in 29/73 (39.7%) while 8/73 (11%) did not know their status. High risk for OSA was present in 16/73 (21.9%) of respondents. Statistically significant relationship was found between OSA and snoring, age, hypertension and obesity.

Conclusion: There is a high prevalence of snoring and high risk for obstructive sleep apnea among doctors in Benue state. High risk for OSA is strongly associated with snoring, age, high BMI and hypertension.

Keywords: prevalence, snoring, obstructive sleep apnea.

INTRODUCTION

Snoring and obstructive sleep apnea (OSA) are very common medical disorders in the community but remain under diagnosed ^[1]. Snoring is the sound caused by vibrating tissues within the airways of the nose and throat due to turbulent airflow ^[2] while OSA is a pause in respiration for

more than 10 seconds associated with continued but ineffective respiratory effort ^{[1],[3]}. Snoring causes sleepless nights and fatigue for the bed partner, makes the snorer an object of ridicule and is sign of OSA ^[4]. It is the most important and common manifestation related to obstructive sleep apnea (OSA) and may cause hypoxemia and hypercapnia because of partial or complete

obstruction of the upper airway during sleep^[5]. OSA is a serious, potentially life-threatening condition, characterized by repeated cessation of breathing while sleeping, due mostly to complete or partial pharyngeal obstruction and is a growing public health challenge in developing countries^[1]. Factors that increase vulnerability for the disorder include age, male sex, obesity, family history, menopause, craniofacial abnormalities, and certain health behaviours such as cigarette smoking and alcohol use. Despite the numerous advancements in our understanding of the pathogenesis and clinical consequences of the disorder, a majority of those affected remain undiagnosed^{[1], [6]}. Both conditions are associated with sleep disordered breathing (SDB) and excessive daytime somnolence which often lead to road traffic and industrial accidents as well as cognitive deficits and poor performance. Snoring and OSA are associated with many cardiovascular disorders including hypertension, coronary heart disease, congestive heart failure, stroke, erectile dysfunction and impaired glucose tolerance/diabetes mellitus. Conversely, OSA and snoring have been shown to be highly prevalent among subjects with hypertension and heart failure^[7]. It is also associated with numerous psychiatric comorbid diagnoses including depression, anxiety, posttraumatic stress disorder, psychosis, and bipolar disorders^[8]. It has grave clinical and morbidity consequences with impairment in quality of life and rising cost of management^{[7], [8]}. The prevalence of obstructive sleep apnea in the general population worldwide is 3-7% and 2-5% for adult male and females respectively with subsets having higher prevalence^[6]. Sleep apnea is highly prevalent in the Black population the USA. A community-based study comparing older Blacks and Whites showed that Blacks experienced severe sleep apnea with a relative risk twofold as great as that of their White counterparts^[8]. Though there is a paucity of data on the burden of OSA in many low-income countries, it is generally presumed that OSA is uncommon in these populations^[1]. As

cardiovascular disease remain the number one cause of death worldwide with increasing frequency and severity in the developing economies, the prevalence of snoring and high risk for OSA may mirror the population burden of cardiovascular disease and used to identify people who will require more intensive drug and non-pharmacological based intervention to reduce their risk of cardiovascular death^[7]. There are few data on the population prevalence of snoring and OSA in Africa^[7]. Few studies have been done in Nigeria which were mostly in one geographical area. None of these involved medical doctors. Medical doctors (practitioners) are an important work force, responsible for the maintenance of a healthy population which is important for enhanced productivity in a developing country like Nigeria. Their being healthy is therefore very important in the optimal performance of their duties.

This study aimed at describing the prevalence of snoring and high risk for OSA among medical practitioners in Benue state Nigeria.

MATERIAL AND METHODS

Study Area: Benue State with an estimated population as at 2016 of 5.67 million people is one of the 36 states located in north central Nigeria. The state has 2 tertiary health institutions, located in the capital town Makurdi which also hosts a concentration of several other government and private institutions. There are also primary, secondary, and several private health care institutions across the 23 local government areas in the state. The state has about 350 medical doctors of various cadres in these and other institutions.

Study Design: This cross-sectional study was carried out during the annual general meeting of the Benue state branch of the Nigeria medical association, (the professional association of all medical doctors in Nigeria) from 28-29th July 2016. A total of 232 doctors attended the meeting. We studied 73 subjects that were medical doctors randomly selected from those attending the

conference who formed a fair representation of the doctors in the state. The questionnaire used to evaluate the risk of OSAS was the Berlin questionnaire which is a validated tool for detection of snoring and OSA. Briefly, the questionnaire is divided into three categories. In category 1, respondents are asked whether they snore. Those who respond affirmatively are asked how loud the snoring is, how often it occurs, and whether their snoring bothers other people. Respondents are also asked whether anyone has ever noticed cessation of their breathing during sleep. In category 2, respondents are asked how often they feel tired or fatigued right after sleep, how often they feel tired, fatigued, or not up to par during wake time, and whether they ever fall asleep driving a car. In category 3, respondents are asked about a personal history of hypertension, as well as their height, weight, age, and sex. Body mass index (BMI) is calculated from the information in category 3. A category is considered positive if there are two affirmative answers in either category 1 or 2, or one affirmative response in category 3. Individuals who have positive scores in two of the three categories are considered to be at high risk for OSAS.

A copy of the Berlin questionnaire was distributed to each of 140 randomly selected participants (doctors). Information on demographics, snoring, and hypertension was collated. BMI was calculated using the information from category 3. Data was analyzed using Statistical Package for Social Sciences (SPSS) 17.0. Qualitative data was expressed as percentages and all values as mean \pm SD. Chi Square was used to assess the difference between variables and Pearson's test of correlation to test association between variables. A P value of ≤ 0.05 was taken as statistically significant and confidence levels at 95%.

RESULTS

Out of the 232 participants, 140 questionnaires were distributed out of which 73 respondents returned the completed copies giving a response

rate of 52%. There were 64 males and 8 females (ratio 8:1). The age range was 25-69 years. Most (60.1%) were within the range of 31-50 years. The mean Body Mass Index (BMI) was 28.2 ± 4.5 . Snoring was present in 29/73 (39.7%) while 8/73 (11%) did not know their status. High risk for OSA (2 or more categories of the questionnaire where the score is positive) was present in 16/73 (21.9%). A statistically significant relationship was found between snoring and OSA ($\chi^2 = 31.10$, $P = 0.00$), OSA and Age ($\chi^2 = 24.14$, $P = 0.00$), BMI ($\chi^2 = 31.10$, $P = 0.03$), Hypertension ($\chi^2 = 21.73$, $P = 0.00$).

DISCUSSION

The study screened 73 medical doctors in Benue state and found an overall prevalence of snoring of 39.7%. This high rate is similar to that in the study by Sogebi et al which found a prevalence of 37.9% among ENT patients in Shagamu and Akintunde et al that reported snoring prevalence of 44% among university workers in Ogbomosho respectively^{[2],[7]} However Adewole found a slightly lower rate of 31% in residents of Abuja. The lower prevalence reported by Adewole in Abuja compared our study and the others may be due to the population mix in his study compared our defined populations. The prevalence of high risk for OSA in our study was 21.9% which is similar to that of Adewole et al at Abuja, and James et al in Benin who studied different groups of subjects^{[9],[10]}. However Obaseki et al found a higher prevalence of (36%) among long distance drivers in Nigeria at Ife^[11]. This between our study and this one difference could be due this study population being more likely to engage in modifiable risk factors like excessive alcohol use, smoking and to also physically exhaust themselves (through continuous long hours of driving) than doctors. Similarly, Akintunde et al reported higher rates of 30.6% and 30.9% among males and females respectively in their study. It is possible that our study population were less likely to engage in some of the modifiable risk factors mentioned above compared to general population

of university workers. Regional differences could also explain the disparity in prevalence of both snoring and OSA in these studies. A large scale study may be necessary to define the characteristics of those with Snoring and OSA in Nigeria. Our study and others in the country report prevalence lower than that of some African countries. In Morocco a prevalence rate of 56% was reported among those referred to the respiratory physicians for suspected sleep disorder.^[11]

Globally the estimated prevalence of OSA is in the range of 3-7% in both developed and developing countries with subgroups of the population having higher prevalence of risks^[6]. Population studies in the USA found risks of 5-26% with prevalence and being highest in African -American populations^{[8],[12]}. In Caribbean blacks, a high rate of symptoms of OSA ranging from 14-45% was reported^[13]. Our findings are in agreement with these reports and indicate that prevalence of snoring and OSA is high in blacks but is grossly underestimated and therefore under diagnosed. Risk factors found in this study were similar to those reported in other studies, i.e. mainly obesity, snoring, age and a strong association with hypertension^{[2],[8],[19]}.

CONCLUSION

There is a high prevalence of snoring and high risk for obstructive sleep apnea among doctors in Benue state. High risk for OSA is strongly associated with snoring, age, high BMI and hypertension.

RECOMMENDATION

Doctors in Nigeria should regularly undergo medical examination to detect and treat snoring and OSA to avoid engender continued high performance in their duties.

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