

A Retrospective Analysis of Hypertrophy of Salpingopharyngeal Fold in Obstructive Sleep Apnea at a Tertiary Care Hospital

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ABSTRACT

Background: Obstructive sleep apnea (OSA) is a sleep-concerned breathing disorder that involves a decrease or complete stop in airflow in spite of an ongoing effort to breathe, which is a result of relaxation of the pharyngeal muscles. Hence, the present study was conducted for evaluating the hypertrophy of salpingopharyngeal fold in OSA.

Materials & Methods: A total of 40 patients were enrolled in the present study. Complete demographic and clinical details of all the patients were obtained. BIS™ monitoring was done in all the patients which is a valid bispectral index monitor for measuring the depth of sedation. Each of them was instructed to grade the hypertrophy of the fold as Grade 0 being normal anatomy, Grade 1 being hypertrophy causing partial obstruction and Grade 2 being hypertrophy causing complete obstruction of lateral pharyngeal wall. Further division of all the patients was done into two study groups as follows: Group A: Patients without OSA and Group B: Patients with OSA. All the results were assessed using SPSS software.

Results: Out of 40 patients, hypertrophy of the SPF was seen in 21 patients. Hence, overall incidence was 50.25 percent. Out of 21 patients, 12 patients had grade 1 hypertrophy and 9

patients had grade 1 hypertrophy. While assessing the correlation of SPF Hypertrophy and AHI among patients with OSA and without OSA, significant results were obtained.

Conclusion: Patients with OSA see a substantial rise in AHI because of SPF hypertrophy.

Key words: Salpingopharyngeal Fold, Obstructive Sleep Apnea.

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INTRODUCTION

Obstructive sleep apnea (OSA) is a sleep-concerned breathing disorder that involves a decrease or complete stop in airflow in spite of an ongoing effort to breathe, which is a result of relaxation of the pharyngeal muscles. The majority of people with OSA snore loudly and frequently, with periods of pause when airflow is reduced or blocked. They then have choking, snorting, or gasping sounds when their airway resumes during sleep, causing soft tissue in the back of the throat to collapse and obstruct the upper airway. The prevalence of obstructive sleep apnea syndrome (OSAS) is 4% in men whereas 2% in women among middle-aged population. As age increases, the prevalence also rises and is estimated around 28%–67% for elderly men and 20%–54% for elderly women.¹⁻⁴

Pae et al. found tongue shape in patients with OSAS to be different from that of normal subjects in the supine position this being the first study to evaluate tongue shape in the supine position. Tongue shape therefore may be taken to play an important role in the development of OSAS. Altered upper airway anatomy, conditioned by skeletal abnormalities as in Pierre Robin

syndrome, or by alterations of the soft tissues of the neck, particularly in obese patients, with increased adipose tissue in the region of the neck with fat infiltration and edema in the soft palate, are also implicated in this syndrome. Although obesity is regarded as a principal risk factor in the occurrence of OSAS, it has been shown that the neck perimeter is more closely correlated to severity of the syndrome than body mass index, though there is usually direct proportionality between obesity and neck perimeter.⁵⁻⁷

Lymphoid accumulations (prenodules) by the rhinopharynx are disposed mainly in the area of salpingo-pharyngeal folds and between them, in the oral part of the organ--near salpingo-pharyngeal folds and in the posterior wall.⁸ Hence; the present study was conducted for evaluating the hypertrophy of salpingopharyngeal fold in OSA.

MATERIALS & METHODS

The present study was conducted for evaluating the hypertrophy of salpingopharyngeal fold in OSA. A total of 40 patients were

enrolled in the present study. Complete demographic and clinical details of all the patients were obtained. BIS™ monitoring was done in all the patients which is a valid bispectral index monitor for measuring the depth of sedation.

Apnoea-Hypopnoea Index (AHI) was assessed. Each of them was instructed to grade the hypertrophy of the fold as Grade 0 being normal anatomy, Grade 1 being hypertrophy causing partial

obstruction and Grade 2 being hypertrophy causing complete obstruction of lateral pharyngeal wall.

Further division of all the patients was done into two study groups as follows: Group A: Patients without OSA and Group B: Patients with OSA.

All the results were assessed using SPSS software. Chi-square test was used for evaluation of level of significance.

Table 1: SPF hypertrophy grading

Groups	Grade 0	Grade 1	Grade 2
Group A	38.32	50.41	56.12
Group B	33.91	45.39	55.28
p-value	0.001*	0.001*	0.774

*: Significant

RESULTS

Out of 40 patients, hypertrophy of the SPF was seen in 21 patients. Hence; overall incidence was 50.25 percent. Out of 21 patients, 12 patients had grade 1 hypertrophy and 9 patients had grade 1 hypertrophy. While assessing the correlation of SPF Hypertrophy and AHI among patients with OSA and without OSA, significant results were obtained.

DISCUSSION

Obstructive sleep apnea (OSA) is defined as the occurrence of at least 5 episodes per hour of sleep during which respiration temporarily ceases. Although OSA is a relatively common medical condition, it is believed that more than 85% of patients with clinically significant OSA have never been diagnosed. This is thought to reflect the fact that many patients with symptoms of OSA are not aware of their heavy snoring and nocturnal arousals. The cardinal features of OSA include signs of disturbed sleep such as snoring and restlessness, interruptions of regular respiratory patterns during sleep, and daytime symptoms such as fatigue or trouble concentrating that are attributable to disrupted sleep patterns at night.⁸⁻¹⁰

Aparicio HJ et al investigated the use of screening tools and the implementation of an inpatient portable sleep study to evaluate stroke patients for sleep-disordered breathing. Patients admitted to the stroke unit at medical center, over nine months, were screened for sleep apnea using three instruments, the Epworth Sleepiness Scale (ESS), Berlin Questionnaire (BQ), and STOP-BANG Questionnaire (STOP-BANG). Sleep questionnaires were administered on 37 patients who underwent an overnight sleep study. Portable studies were used to evaluate 33 patients, and 13 PSGs were performed. Obstructive sleep apnea was diagnosed in 20 (69%) and central sleep apnea in 9 (31%). Cheyne-Stokes pattern breathing was observed in 2 (5%). Mean AHI was 18.3 ± 21.8/hr and maximum AHI was 105.8/hr. Sensitivity for the ESS, BQ, and STOP-BANG were 0.39, 0.66, and 0.83 and specificity were 0.26, 0.33, and 0.29, respectively. In patients who underwent both sleep studies, 9/10 (90%) of the diagnoses were concordant. The STOP-BANG questionnaire, administered to hospitalized stroke patients, had high sensitivity and low-moderate specificity, compared to two other commonly used screening tools. The

feasibility of using an unattended inpatient portable sleep study on stroke patients is demonstrated.¹¹

Sadhasivam S et al tested the hypothesis that the BIS score is a valid measure of the depth of pediatric sedation in a study designed to avoid limitations of a previously published report. BIS values from 96 healthy ASA physical status I-II children aged 1-12 yr undergoing sedation were continually recorded and electronically transferred to a computer. Two independent observers blinded as to BIS score evaluated sedation using the Observer's Assessment of Alertness/Sedation (OAA/S) and the University of Michigan Sedation Scale (UMSS) at 3-5 min intervals. There was a significant correlation between BIS and UMSS and between BIS and OAA/S by both the Spearman's rank correlation test and by prediction probability ($P < 0.001$). In children <6 yr, there was a significant correlation between BIS and the clinical sedation scores for subgroups undergoing invasive and noninvasive procedures ($P < 0.001$). There was also good agreement between the 2 independent observers who assessed clinical sedation scores. They conclude that the BIS monitor is a quantitative, nondisruptive and easy to use depth of sedation monitor in children.¹²

CONCLUSION

Patients with OSA see a substantial rise in AHI because of SPF hypertrophy.

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