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Medicine

MANAGEMENT OF OBSTRUCTIVE SLEEP APNEA-CLASSICAL TONSILLECTOMY OR COBLATION TONSILLECTOMY

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ABSTRACT:
OBSTRUCTIVE SLEEP APNEA IS A SERIOUS DISEASE THAT OCCURS WHEN A NORMAL PERSONS BREATHING IS INTERRUPTED DURING SLEEP .ALTHOUGH PEOPLE TEND TO DISMISS SLEEP DISORDERS THEIR IMPACT ON THE QUALITY OF LIFE IS IMPORTANT PRODUCING DAYTIME SLEEPINESS, THE INABILITY TO CONCENTRATE AND CAN ULTIMATELY LEAD TO MORE IMPORTANT DISEASES LIKE HIGH BLOOD PRESSURE AND CAN EVEN CAUSE DEATH TO SUDDEN CARDIAC ARREST. TOBACCO AND ALCOHOL ABUSE ARE AMONG THE RISK FACTORS BUT THE MOST IMPORTANT ONES ARE RELATED TO DIFFERENT ANATOMICAL STRUCTURES THAT CAN STOP THE AIR FLOW LIKE LARGE TONSILS. WE PRESENT 30 PATIENTS DIAGNOSED WITH SLEEP APNEA WITH A CLEAR INDICATION FOR TONSILLECTOMY PERFORMED BY A CLASSICAL TECHNIQUE AND WITH COBLATION . RESULTS SHOWED FASTER RECOVERY FOR THOSE WHO UNDERWENT COBLATION TONSILLECTOMY AND ALSO IMPROVED SYMPTOMS RELATED TO SLEEP APNEA.

KEY WORDS: TONSILLECTOMY, SLEEP APNEA, COBLATION

INTRODUCTION

Sleep apnea is a disease in which the flow of air in repeatedly interrupted during sleep due to mechanical obstruction of the superior respiratory tract. It is a common disease especially in our times due to tobacco and alcohol abuse and poor diet leading to obesity although underdiagnosed due to the fact that patients usually ignore the symptoms . The main risk factors for this disease as mentioned before are obesity , alcohol and tobacco use and in some cases different anatomical structures that cause mechanical obstruction like hipetrophy of the nasal turbinates, large tonsils , large tongue base and so on. Symptoms can range from mild snoring, headaches in the morning, irritability up to daytime sleepiness that can cause the patients to fall asleep during routine activities[13]. Usually patients ignore their daytime symptoms and in most cases they are unaware of their nighttime symptoms. In these cases their relative are the ones who help in the diagnosis telling about snoring and episodes of hypopnea or apnea. Although the symptoms are enough to lead to the suspicion of obstructive sleep apnea a definitive diagnostic is made with the help of a sleep test which can offer information regarding the severity of the disease using the hypopnea/apnea index.

Obesity is largely recognized as the most important risk factor for sleep apnea but anatomical structures can also have an important role in the etiology of this disease. Tonsilar hypertrophy is one of the most common problems causing sleep disorders. The treatment for sleep disorders caused by enlarged tonsils is tonsillectomy. This can be achieved either by traditional tonsillectomy or lately by coblation tonsillectomy.

[13] Elwany S, Mandour Z, Ibrahim M (2016) *Tonsillectomy as a Treatment of Obstructive Sleep Apnea in Adults with Tonsillar Hypertrophy*. Ann Otolaryngol Rhinol 3(12): 1146; Flint, Paul W. *Cummings Otolaryngology Head and Neck Surgery*. 6th Edition, 2014, Mosby Elsevier; Holmlund T, Franklin KA, Levring Jäghagen E, Lindkvist M, Larsson T, Sahlin C, Berggren D.; *Tonsillectomy in adults with obstructive sleep apnea;* Laryngoscope. 2016 Dec;126(12):2859-2862. doi: 10.1002/lary.26038; Omrani, Mohammadreza et al. "*Coblation versus traditional tonsillectomy: A double blind randomized controlled trial."* Journal of research in medical sciences : the official journal of Isfahan University of Medical Sciences vol. 17,1 (2012): 45-50

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MAIN TEXT

METHODS AND MATERIALS

The prospective study was carried out over 30 patients diagnosed with obstructive sleep apnea following a sleep study, with tonsilar hypertrophy. Patients also underwent a complete endoscopic examination to rule out any other anatomical structure that could cause obstruction of the airflow. The patients signed the informed consent for participating in the study.

The patients were admitted in the ENT department of Coltea Hospital and underwent a detailed general and ENT examination, blood tests and preanaesthesic examination. All patients underwent surgery under general anaesthesia.

The patients were also asked to complete a survey regarding their daytime sleepiness used to assess their postoperative results .The patients completed the same survey at 1 and 3 months postoperatively. Only patients who did not change their lifestyle (tobacco use, weight) were included in the study.

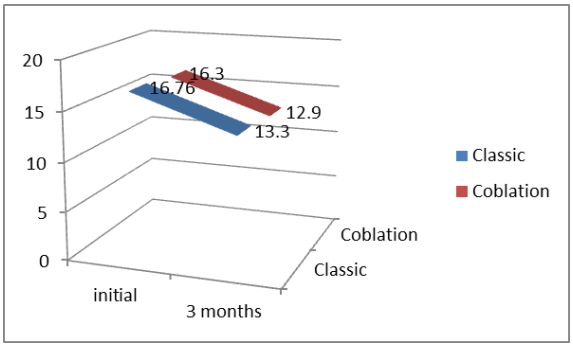
The study was conducted for 2 groups of 15 patients each for the selected technique , 15 patients who underwent traditional tonsillectomy and 15 patients who underwent coblation tonsillectomy. Also the patient were asked to complete a visual analog scale regarding pain after surgery and the impact it has on sleep.

OBSERVATION AND ANALYSYS

Out of the 30 patients, 25 (83%) were males and 5 females (17%). All patients were in the age group of 40-55 years with a mean age of 46 years old. All patients had tonsilar hypertrophy mostly having a grade 3+ tonsils.

For the classic tonsillectomy group the mean hypopnea/apnea index was 16.76, while in the coblation group the mean index was 16.30. Thus, the majority of the patients were suffering from mild obstructive sleep apnea.

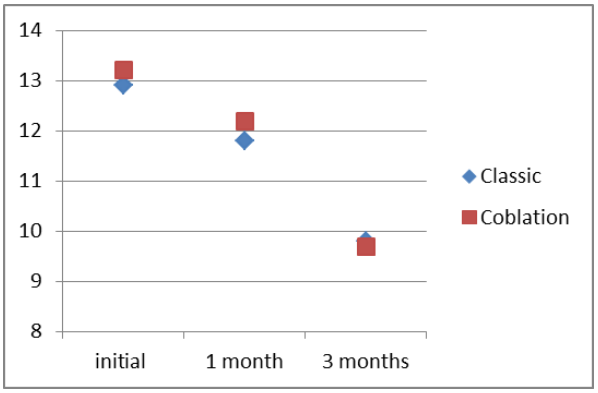
Table 1. Mean Apnea/Hypopnea Score before and after surgery



Postoperative, at 3 months, the patients underwent another sleep study where the mean hypopnea/apnea index showed improvement in both groups: 12.9 for the coblation group and 13.3 for the classic tonsillectomy group.

As for the daytime sleepiness score before the surgery the mean score was 12.9 for the classic tonsillectomy and 13.2 for the coblation group.

Table 2 .Daytime sleepiness mean score



As for the evolution of the daytime sleepiness score, it shows similar improvement in both groups. At 3 months, the mean daytime sleepiness score was 9.8 for the classic tonsillectomy and 9.7 for the coblation group.

The only real difference was about the speed of recovery and the postoperative pain. The classic tonsillectomy group had a mean VAS pain score of 7.8 and complained about pain and the need for pain killers before sleep while in the coblation group the mean VAS pain score after surgery was 5.4 in the first week. There were 2 cases of postoperative bleeding in the classical tonsillectomy group while in the coblation group there were no postoperative complications.

DISCUSSION

Omrani et al[14], reported that coblation tonsillectomy can result in less blood loss and tissue damage that can shorten the recovery time for patients . Patient in the coblation group felt better after surgery and were starting their daily activities after discharge faster than the classic tonsillectomy group .

Senchak et al[15] reported that the mean apnea/hypopnea index decreased after tonsillectomy stating that subject achieved at least a 50% reduction of the apnea/hypopnea index was about 94.7%. Our results are consistent with these findings showing improvement in both apnea/hypopnea index and daytime sleepiness scores after surgical procedures .

We also found that there is no difference between the results of the two surgical techniques and it is important to keep in mind that only patients that did not change their lifestyle were taken into account. Thus the results should be considered only due to the surgical intervention. Treating obstructive sleep apnea is a complex task and that surgical interventions should be complemented with treating obesity. Corral et al[16] reported that weight loss appears to confer benefits not only on

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[15] Senchak, Andrew J., Alex J. McKinlay, Jason Acevedo, Brenda Swain, Maitram Christine Tiu, Brian S. Chen, Jon Robitschek, et al. "*The Effect of Tonsillectomy Alone in Adult Obstructive Sleep Apnea."* Otolaryngology–Head and Neck Surgery, 152, no. 5 (May 2015): 969–73. doi:10.1177/0194599815575721

[16] Romero-Corral A, Caples SM, Lopez-Jimenez F, Somers VK. *Interactions between obesity and obstructive sleep apnea: implications for treatment.* Chest. 2010;137(3):711-9; Ionela Mihaela Vladu, Bogdan Socea, Vlad Baleanu et

obstructive sleep apnea severity but also in terms of mitigating cardio-metabolic consequences related to both obstructive sleep apnea and obesity.

Holmlund et al[17] reported that the Epworth sleepiness scale was reduced from a mean of 11 to 6 after tonsillectomy stating that tonsillectomy may be an effective treatment for obstructive sleep apnea in adults with large tonsils. Our study also showed improvement in mean sleepiness score in both groups , with no significant difference between them.

Elwany et al[18] reported that patients with grade 3 or 4 tonsils and with mild to moderate obstructive sleep apnea are more likely to benefit from tonsillectomy. These result confirm the findings of our study where the majority of patients fit this criteria. It also shows a limitation in our study due to the lack of patients with severe obstructive sleep apnea.

Polites et al[19] reported coblation tonsillectomy causes significantly less pain during the first three postoperative days, when compared with dissection tonsillectomy.. These results are consistent with our findings and implies that the use of coblation tonsillectomy should be used where available for the benefit of the patient and the speed of recovery.

CONCLUSION

Obstructive sleep apnea is a complex disease affecting the quality of life and can become life threatening if untreated . Due to its increased awareness lately more and more patients recognize symptoms and seek medical advice. Treating obstructive sleep apnea is a complex and often a challenging task due to the fact that is various risk factors have to be identified and dealt with. Dealing with obesity is the most important step in treating this disease but in cases where surgical treatment is necessary identifying the cause for obstruction is important. The tonsils are one if the commonest location in which obstruction occurs and a variety of surgical techniques for removing tonsils are available . As seen in our study there are no significant differences between the results of classical tonsillectomy and coblation and using a technique with increase recovery is mandatory in this patients.

CONFLICT OF INTEREST

The authors have no conflict of interest.

CONTRIBUTION OF AUTHORS

All authors have equally contributed to this work

ETHICAL APPROVAL

All procedures performed in this study were in accordance with the ethical standard of the institution and with the 1964 Helsinki declaration and its later amendments.

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