

The Effect of Surgical Intervention on Pediatric and Adolescent Obstructive Sleep Apnea Syndrome

Authors : Ching-Yi Yiu, Hui-Chen Hsu

Abstract : Objectives: Obstructive sleep apnea syndrome (OSAS) is a popular problem in the modern society. It usually leads to sleep disorder, excessive daytime sleepiness and associated with cardiovascular diseases, cognitive dysfunction and even death. The nonsurgical therapies include continuous positive airway pressure (CPAP), diet and oral appliances. The surgical approaches have nasal surgery, tonsillectomy, adenoidectomy, uvulopalatopharyngoplasty (UPPP) and transoral robotic surgery (TORS). We compare the impact of surgical treatments on these kinds of patients. Methods: Between January 2018 to September 2022, We have enrolled 125 OSAS patients including 82 male and 43 female in Chi Mei Medical Center, Liouying, Taiwan. The age distribution from 6 to 71 years old (y/o) with mean age 36.1 y/o. The averaged body mass index (BMI) is 25 kg/m² in male and 25.5 kg/m² in female. In this cohort, we evaluated their upper airway obstruction sites with nasopharyngoscopy and scheduled a planned surgery. Some of cases received polysomnography (PSG) preoperatively, the averaged apnea-hypopnea index (AHI) is 37.7 events/hour. We have 68 patients received tonsillectomy, 9 received UPPP, 42 received UPPP and septomeatoplasty (SMP) and 6 received adenoidectomy and tonsillectomy (A and T). The subjective daytime sleepiness was evaluated with the Epworth sleepiness scale (ESS). Results: In the 68 tonsillectomy group, the averaged BMI is 24.9 kg/m². In the UPPP group, the averaged BMI is 28.9 kg/m². In UPPP and SMP group, the averaged BMI is 27.9 kg/m². In the A and T group, the averaged BMI is 17.2 kg/m². The reduction of AHI less than 20 is 58% postoperatively. The ESS reduced from 10.9 to 4.9 after surgery. Conclusion: Obstructive sleep apnea syndrome is a common upper airway disturbance in the general population. The prevalence rate is ranging high depending on different regions, age, sex and race. It leads to severe morbidity and mortality including car accident, stroke, nocturnal desaturation and sudden death and should be considered to be a major public health problem. The CPAP is effective to improve daytime sleepiness but the long-term compliance is low. The surgical treatment with different modalities can produce 50% decrease in AHI and ESS after surgery in the 6 to 12 months short-term period.

Keywords : apnea-hypopnea index, obstructive sleep apnea syndrome, polysomnography, uvulopalatopharyngoplasty

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