

Predictors of OSA following Adenotonsillectomy in Children with Down Syndrome

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Abstract

Objectives: Given that 30-50% of children with Down syndrome have persistent obstructive sleep apnea (OSA) after adenotonsillectomy, we evaluated whether demographic, clinical and polysomnographic factors predicted persistent OSA and OSA severity after adenotonsillectomy. **Design:** Retrospective study. **Setting:** Secondary care hospital. **Participants:** Retrospective review of 32 children with the diagnosis of DS and OSA by polysomnography type 1 who underwent adenotonsillectomy, from January 2010 to December 2018. **Main outcome and measure:** Non-parametric analysis was used to compare pre and postoperative factors, regression was used to model persistent OSA and OSA severity. **Results:** Thirty-two children were included (17 male, median age 10.00 ± 8.00 years, median body mass index z-score 0.89 ± 1.25). Overall, adenotonsillectomy resulted in a significant improvement in median obstructive apnea-hypopnea index (oAHI) from 7.5 ± 8.95 to 4.40 ± 4.38 events per hour ($p < 0.001$) and in median OSA-18 score from 85.00 ± 12.00 to 61 ± 37.75 ($p < 0.001$). Persistent OSA was found in 56.25% of the children. Univariate regression suggests that postoperative OSA-18 score predicted persistent OSA after adenotonsillectomy. Preoperative oAHI, preoperative oxygen desaturation rate, pre and postoperative OSA-18 scores correlated with OSA severity after adenotonsillectomy. However, in a multivariate model only the postoperative OSA-18 score was able to predict OSA severity after adenotonsillectomy. **Conclusions:** Although adenotonsillectomy results in a significant improvement of OSA in children with Down syndrome, more than half of the children had persistent OSA. The postoperative OSA-18 score predicted both persistent OSA and OSA severity after adenotonsillectomy.

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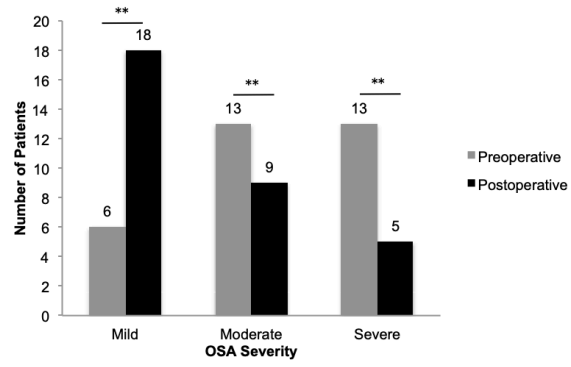


Figure 1. Changes in OSA severity after adenotonsillectomy.

Abbreviations: OSA, obstructive sleep apnea.

** $p < 0.001$