The association of age and increased Body Mass Index among Olmsted County children undergoing (adeno) tonsillectomy for sleep disordered breathing.

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Introduction: Approximately 14% of children and adolescents in the U.S. were overweight in 1999. Marcus et al., studied 22 obese children and found roughly half had abnormal polysomnograms, and a positive correlation between the degree of obesity and the apnea index. In this study, we investigated whether children having (adeno)-tonsillectomy for sleep disordered breathing had a body mass index (BMI) different from age-mates not having sleep-disordered breathing or (adeno)tonsillectomy.

Methods: From among 18,867 children between the age of 2 and 18 identified in Olmsted County as having a BMI recorded between the years 1996 – 2005, 1301 underwent (adeno)-tonsillectomy. Within that group 533 cases were further identified as having a BMI value within one year prior to the procedure and having a history of sleep-disordered breathing. Each case was subsequently matched by gender, birth date (+/- 1 year), and age (+/- 1 year) at the time of the BMI with two children from the cohort without tonsillectomies (controls). Cases and controls were divided into two age cohorts, those from the second birthday until one day prior to the seventh birthday and those from the seventh birthday until one day prior to the eighteenth birthday.

Results: In the 2 - 6 years old group (330 cases vs 660 controls) the median BMI was 15.98 among cases versus a median of 16.11 among controls (p-value=0.24). However, for the 7-18 year age group (185 cases vs. 370 controls), the median BMI was 19.45 for cases and 17.90 for controls (p-value<0.001).

Discussion: Other studies have demonstrated that among obese children sleep disordered breathing is prevalent, and that (adeno)-tonsillectomy is effective in reducing symptoms. In the current study, we have preliminary data that suggests that an increase in BMI is confined to older children and adolescents. Young children undergoing (adeno)-tonsillectomy for sleep disordered breathing have BMI’s that are not different from matched controls. Additional studies are planned to investigate growth pattern changes that may occur as a result of (adeno)-tonsillectomy.