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THE ACCURACY OF SPLIT-NIGHT STUDY IN ASSESSING OBSTRUCTIVE SLEEP APNEA (OSA) IN CHILDREN AND ADOLESCENTS

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Introduction: Split-night polysomnography (PSG) can be used for the diagnosis of OSA, if clinically appropriate, per AASM recommendation based on adult data. However, there are limited data in pediatric population. The aim of our study is to assess the accuracy of split-night-PSG compared with a full-night-PSG in children with OSA.

Methods: A retrospective review was performed in children and adolescents who were diagnosed with OSA during a diagnostic PSG (oAHI >1). Sleep and respiratory parameters from the full-night-PSG(F) were compared with the first three hours of the same PSG(S). Subgroup analysis was performed for age and OSA severity. The results were reported as mean±SD. All variables were compared with paired T-test.

Results: 226 met the criteria for entry into analysis. The mean age was 7.8y±5.8. For the whole cohort, there were no significant differences in the mean AHI and oAHI [7.3±11.7(F) vs6.9±13.9(S),p=0.26] between full-night and split-night studies. Subgroup analysis revealed that children aged 2-12 yo (n=120) had significant differences in the mean AHI [6.1±7.1(F)vs4.8±6.4(S) p=0.002] and the mean oAHI [4.8±5.6(F)vs3.9±5.4(S)p=0.03]. In addition, subgroup analysis of mild OSA (n=137) showed a significant difference in the mean AHI (p=0.006), but not in the mean oAHI (p=0.08). There were no significant differences in the mean AHI and oAHI in the moderate to severe OSA group. Based on the first 3 hours of PSG, 16.8%(n=38) of patients were inaccurately classified to have no OSA, while the severity was misclassified in 37.6%(n=85) of patients (underestimated in 30%(n=68) and overestimated in 7.5%(n=17)).

Conclusion: Although there were no differences in the mean AHI and oAHI, split-night-PSG misclassified diagnosis and severity in a significant proportion of our pediatric cohort. In addition, the accuracy of split-night-PSG is influenced by age and severity of OSA. Further studies are needed to identify factors that play a role in these differences.

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LONG-TERM EFFECTS OF ADENOTONSILLECTOMY IN CHILDREN DIAGNOSED WITH OBSTRUCTIVE SLEEP APNEA ON RISK FACTORS FOR CARDIOVASCULAR MORBIDITY

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Introduction: Obstructive sleep apnea (OSA) is an independent risk factor for cardiovascular morbidity in adults. In children, cardiovascular morbidity associated with OSA is usually thought to resolve after tonsillectomy and adenoidectomy (T&A). There is no information regarding the long term effects of T&A on future cardiovascular morbidity in children diagnosed with OSA. In this study, we performed data mining to assess long-term effects of adenotonsillectomy on risk factors for cardiovascular disease, in young adults.

Methods: This study retrospectively investigated the population defined by a previous study in our institution [Tarasiuk etal Pediatrics 2004] and compared a group of children diagnosed with OSA and underwent T&A(n=130) to a group of children diagnosed with OSA that did not undergo T&A(n=90) to a control group without OSA (n=505). Demographic data, vital signs, anthropometric measurements, medical diagnoses (9th revision (ICD-9) codes) and medication purchases were captured from the HMO computerized database, between the years 1998-2018. When appropriate, univariate comparisons were made using χ^2-test or Fisher's exact test for categorical variables, and one-way ANOVA or Kruskal-Wallis tests for quantitative variables. We performed multivariate logistic regression to model the factors associated with the diagnosis of obesity. IBM SPSS software, version 25.0, was used for statistical analysis.

Results: We have found that 20 years after their OSA diagnosis, patients (25.1 years, 52.2% males, 26.2 BMI) who were diagnosed with OSA at age 5 and did not undergo T&A consumed more medications associated with cardiovascular morbidity (anti-hypertensive, statins, aspirin) than those who underwent T&A(P<0.001). Surprisingly, multivariate logistic regression revealed that only females diagnosed with OSA (with or without T&A) were diagnosed as obese in comparison to those that did not have OSA (P<0.001).

Conclusion: Children who were diagnosed with OSA and were not operated will consume more medications (anti-hypertensive, anti-hyperlipidemia, aspirin) as young adults, a surrogate marker for early cardiovascular disease. OSA in girls seems to serve as a risk factor for obesity in their third decade of life. It is important to diagnose and treat OSA in children, and to monitor and prevent obesity, mainly in females.

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OBSTRUCTIVE SLEEP APNEA SEVERITY, SYMPTOMS OF ATTENTION DEFICIT HYPERACTIVITY DISORDER AND OTHER COMORBID PSYCHIATRIC DISORDERS IN CHILDREN AND ADOLESCENTS: A RETROSPECTIVE DATA ANALYSIS.

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Introduction: Children and adolescents with obstructive sleep apnea (OSA) are often diagnosed with attention deficit hyperactivity disorder (ADHD). However, the connection between the severity of Apnea/Hypopnea Index (AHI) and ADHD is controversial with research evidence pointing in opposing directions.

Methods: A retrospective study was conducted in a pediatric sleep center at a university hospital setting to investigate the effect between AHI severity, ADHD and/or other comorbid psychiatric disorders. One hundred and thirty-eight participants between the age of 6 and 18 were examined in terms of AHI severity level and their correlation with scores from the Child Behavior Checklist (CBCL) using SPSS program.

Results: A negative correlation between AHI scores and Attention Problems for the entire group of participants was found.