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PREVALENCE AND CHARACTERISTICS OF SLEEP DISORDERED BREATHING IN 12-24 MONTH OLD CHILDREN: A SINGLE CENTER STUDY

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Introduction: To evaluate the prevalence and characteristics of obstructive sleep apnea (OSA) in children with ages between 12 to 24 months.

Methods: This was a single center, retrospective study that included children with ages 12-24 months who were evaluated for suspected sleep disordered breathing and underwent a full overnight polysomnography in an academic sleep disorders center over a period of 7 years. An apnea hypopnea index (AHI) >1 was used to define OSA, >5 was used to define moderate OSA, and >10 was used to define severe OSA.

Results: A total of 232 children with ages between 12-24 months were included in this study. The majority (66.4%) were noted to be males, and 56.9% were Caucasian. Snoring (90.1%) and witnessed apnea (53.3%) were the most common presenting symptoms for sleep evaluation. History of prematurity (18.2%) and gastroesophageal reflux (20.2%) were common co-morbidities. OSA was diagnosed in about 79% of the children and it was categorized as mild in 53.5%, moderate in 16.4% and severe in 30.1%, respectively. There were no statistically significant differences in total sleep time, sleep efficiency, or the stages among these groups. However, statistical significant differences among the groups were noted in median REM% (Q1-Q3) (normal 19.3 (15-22.2) vs. mild 22.2 (18-26.6) vs. moderate 23.1(16-28) vs. severe 21(15-24.6) p=0.013), median REM AHI (normal 1.6 (1-2.8) vs. mild 7.5 (5-10.8) vs. moderate 19.4 (12-23.6) vs. severe 51.2 (37-73.4) p<0.001), median OAHl (normal 0.3 (0-0.5) vs. mild 1.1 (1-2.6) vs. moderate 5.5 (4-7.5) vs. severe 20.7 (13-31.9) p<0.001), median supine AHI (normal-0.3 (0.0.6) vs. mild 1.7 (1-3.4) vs. moderate 6.3 (3-8.1) vs. severe 24.3(12-40.4) p<0.001), median SaO2 nadir (normal 94 (90-96) vs. mild 89 (84-91) vs. moderate 86.5 (82-91) vs. severe 80 (73-84) p<0.001), median arousal index (normal 8.9 (7-11.8) vs. mild 11.3 (9-13.5) vs. moderate 13.2 (11-18.6) vs. severe 16.8 (14-23.6) p<0.0001). Surgical treatment was performed in 98 children (53.5% of the children diagnosed with OSA) of which 76 surgeries were adenotonsillectomy.

Conclusion: In children with ages 12-24 months with suspected sleep disordered breathing, OSA was diagnosed in 79% with moderate to severe OSA in 46.5%.

Support (If Any):

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LEVEL II HOME SLEEP APNEA TESTING COMPARED TO IN-LAB POLYSOMNOGRAPHY FOR THE EVALUATION OF OBSTRUCTIVE SLEEP APNEA IN YOUTH WITH DOWN SYNDROME

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Introduction: In-laboratory polysomnography (PSG) is recommended for obstructive sleep apnea (OSA) diagnosis in children. However, cost, insufficient facilities, and disruption to families challenge PSG completion, particularly for youth with disabilities

such as Down syndrome (DS) in whom OSA is common. By providing sleep architecture and arousal-associated hypopnea data, level II home sleep apnea testing (HSAT) with EEG has the potential to be accessible and accurate. We hypothesized that compared to PSG, HSAT would be accurate in detecting moderate-severe OSA in youth with DS and preferred by families.

Methods: Prospective comparative effectiveness study. Youth <18 years old with DS underwent in-laboratory PSG and level II HSAT at home. Parents completed questionnaires assessing feasibility, acceptability, and test preference. HSAT, scored using AASM criteria blinded to PSG result, were compared to reference PSG. OSA was defined as obstructive apnea hypopnea index (OAHl) greater than 5 events per hour on either test.

Results: Thirty-five (17 female) youth aged [median (IQR)] 10.0 (6.1, 16.9) years completed testing. Total sleep time for HSAT was 7.9 (6.9, 8.9) hours versus 6.8 (5.9, 7.0) hours for PSG (p=0.002). PSG OAHl was 12.7/hr (5.3, 21.5). Twenty-six (74.3%) participants had OSA by PSG, 20 of whom were correctly identified by HSAT; one participant with OSA diagnosed by HSAT (OAHl=6.2/hr) was not identified by PSG (OAHl=3.9/hr). Accuracy of HSAT for identifying OSA was 80.0%, sensitivity 76.9%, and specificity 88.9% compared to PSG. Signal quality was good except for pulse oximetry, with median (IQR) adequate signal for 79.5% (57.5%, 86.3%) of the study. Compared to PSG, 83.3% of parents reported that youth had a more normal night's sleep with HSAT, 70.0% of parents found HSAT easier, and 90.0% of youth preferred HSAT.

Conclusion: In youth with DS, HSAT has good accuracy for detecting moderate-severe OSA. Limitations may include night-to-night variability, differences in environment, or loss of oximetry signal. Youth slept more during HSAT than in-lab PSG and the majority of families preferred level II HSAT. Level II HSAT could provide a means for expanding the evaluation of OSA in youth with DS.

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PREVALENCE AND SEVERITY OF SLEEP DISORDERED BREATHING IN ASTHMATIC CHILDREN

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Introduction: Children with severe and poorly controlled asthma have a higher predisposition for sleep disordered breathing (SDB). It can lead to cardiovascular, neurocognitive, and behavioral problems. Variable data exists currently whether demographic factors like age, sex, obesity, adeno-tonsillar hypertrophy tend to increase the risk of SDB in asthmatics. Our objective was to evaluate the risk factors and prevalence of SDB in asthmatics as compared to non - asthmatics and describe the polysomnographic parameters in asthmatics with SDB.

Methods: Asthmatic and non - asthmatic children aged 5 – 15 years, were recruited in this case – control study. Parameters like age, gender, body mass index, adeno-tonsillar hypertrophy, and the history of snoring were compared. All participants completed the Sleep-Related Breathing Disorder scale, extracted from the Pediatric Sleep Questionnaire (SDBS-PSQ) and prevalence of risk of SDB (defined as SDBS - PSQ ≥ 0.33) was calculated. A subset