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Clinical and Polygraphic Features of Children Evaluated with Polygraphy in Pediatric Sleep Laboratory: A Tertiary Center Experience in Turkey

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Objectives: The prevalence of sleep disordered breathing (SDB) in children is 1-4% and OSA can cause significant morbidity in children. Overnight polysomnography (PSG) in the sleep laboratory is the gold standard for diagnosis. However, the availability of PSG is limited. Polygraphy (PG) is a simpler, cost effective method and can be used as an alternative to PSG in children. Our aim was to evaluate the clinical features and PG results of children with suspected SDB who underwent PG in the sleep laboratory of a tertiary center.

Methods: 81 patients, who underwent PG between 2016 and 2018 were included. Demographic data, sleep symptoms and Pediatric Sleep Questionnaire (PSQ) scores were noted and polygraphy results were evaluated. OSAS was as an apnea-hypopnea index (AHI) more than 1. The severity classifications used were: mild (AHI:1-5), moderate (AHI:5-10) and severe (AHI >10). A cut off value of 0.33 in pediatric sleep questionnaire (PSQ) was used to identify pediatric sleep disordered breathing (SDB).

Results: The mean age of the patients were 9.4±4.9 years (67.9% male). Thirty-five patients (43.2%) were referred to sleep laboratory for OSAS symptoms (snoring, mouth breathing, sleep apnea). Seventeen patients (21%) were referred because of high carbon-dioxide levels in blood gases, 20 (24.7%) were referred because of a genetic or neuromuscular disease or a syndrome that predisposes to OSAS. Forty percent of the children had observed apneas during sleep, 65.4% had habitual snoring. Median apnea-hypopnea index (AHI) was 4.6 (range:0-100.3). Mean AHI of the patients with observed apneas during sleep was not higher compared to children without apneas. Mean AHI of snorers were significantly higher than non-snorers (13.2 vs. 5.3, p=0.009). 73 patients completed PSQ and 33 (45.2%) had SDB. There was no significant correlation between PSQ scores and AHI (r=0.19, p=0.1). Mean AHI of the patients with abnormal and normal PSQ scores were 13.4±17.4 and 9.4±17.1, respectively (p: 0.33). Prevalence of OSAS was 80.3% in our population, 34.6% had mild, 14.8% had moderate and 30.9% had severe OSAS. Nocturnal hypoventilation and hypoxemia was diagnosed in 7.4% of the patients and only one PG was not interpretable. In 22 patients (27.2%) a follow up PSG was performed because PG results were incompatible with clinical symptoms or for titration.

Conclusion: Polygraphy is a useful and relatively simple method for SDB diagnosis in children and can be an alternative to PSG to decrease the load of sleep laboratories.

Keywords: Polygraphy, polysomnography, sleep apnea, sleep disordered breathing