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Title: Study of diagnostic factors of OSA in Chinese children

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Body: Objective To study the diagnostic factors of obstructive sleep apnea (OSA) in Chinese children Methods 141 Chinese children were included in this retrospective study. Each child had a sleep questionnaire and nocturnal PSG. An apnea–hypopnea index (AHI) >5 was defined as OSA. Oxygen desaturation index (ODI) and occurrence ratio of sleep problems were compared between OSA and non-OSA groups using the chi-square test. Items that indicated statistically significant differences were tested with non-parametric Spearman correlation tests and binary logistic regression. ODI cut-off point was determined through ODI receiver operating characteristic analysis. Results Among the 141 patients, 78 (55%) were diagnosed with OSA. Occurrences of observable apnea during sleep, mouth breathing, and restless sleep were significantly different between the OSA and non-OSA groups (20.5% vs. 4.8%, 85.9% vs. 71.4%, 69.2% vs. 52.4%, respectively, $P < 0.05$). The median of ODI in the OSA group was significantly higher than that in the non-OSA group (2.5 vs. 0.8, $P<0.05$). At ODI = 1, sensitivity and specificity yielded the best balance in ODI ROC curve (0.78 and 0.57).ODI and occurrences of observable apnea during sleep, mouth breathing, and restless sleep were correlated with AHI (correlation coefficient = 0.623, 0.229, 0.249, 0.172, respectively, $P < 0.05$), and were important diagnostic factors of OSA in children as determined through multiple-factor binary logistic regression (odds ratio = 4.429, 4.35, 2.851, 2.046, respectively). Conclusions ODI and occurrences of observable apnea during sleep, mouth breathing, and restless sleep were important diagnostic factor, and they could predict the diagnosis of OSA in Chinese children.