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Title: Reliability of home respiratory polygraphy monitoring for diagnosis of sleep apnea/hypopnea syndrome (SAHS) in children

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Body: Polysomnography (PSG) performed in a sleep laboratory is the currently accepted technique for the diagnosis of sleep apnea/hipopnea syndrome (SAHS) in children. Respiratory Polygraphy (RP) in children has been validated in the sleep laboratory. AIM: To evaluate the reliability diagnostic of home respiratory Polygraph (HRP) in children with a clinical suspicion of SAHS. Methods: Cross-sectional study. We included children aged 2 to 14 years, of both sexes, with clinical suspicion of SAHS. The whole group underwent clinical history, physical examination, a first home respiratory polygraphy (HRP) and between 1 and 2 weeks later underwent a second RP and PSG in the same night in sleep laboratory. We calculated Respiratory disturbance index (RDI), Obstructive respiratory disturbance index (oRDI) Obstructive Apnea-Hypopneas index (oAHI). Intraclass correlation coefficients (ICC), Bland-Altman plots and receiver operator curves (ROC) were calculated for statistical analysis. Results: We studied 27 boys and 23 girls with a mean age of 5.3 (SD: 2.55). 39 (78%), 33 (66%), 26 (52%) were diagnosed of SAHS, when $RDI \geq 3$, $oRDI \geq 3$ and $OAHl \geq 3$ were take as diagnosis of SAHS. The mean RDI was 13.92 (SD16, 57), 14.46 (SD: 13.23), 16.47 (SD: 15.32) in the PSG, Home RP, RP at laboratory respectively. The area under ROC curve for $RDI \geq 3$, $oRDI \geq 3$ and $OAHl \geq 3$ in the laboratory RP were 93.5 (85.5 - 1), 96.8 (92.1 - 1), 95. 5 (90.6 - 1) and in the HRP were 93.5 (86.8 - 1), 93.9 (87.0 - 1), 92.9 (85.9 - 1) respectively. Conclusions: Home Respiratory Poligraphy is a useful technique for diagnosis of SAHS in children. Funded:Ministry of health Castilla – Leon and SEPAR.