

Age and seasons influence on at-home pulse oximetry results in children evaluated for suspected obstructive sleep apnea.

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BACKGROUND: Seasonal variability on obstructive sleep apnea has already been studied by polysomnography in children. Winter and spring season emerged as critical periods. No data are currently available for pulse oximetry performed at home. The aim of our study was to evaluate the effect of seasonality and age on the results of at-home pulse oximetry performed in children referred for suspected OSA.

METHODS: We retrospectively studied 781 children (64.3% Males), aged 4.9 ± 2.5 years. For all patients, we evaluated both pulse oximetry metrics and the McGill Oximetry Score. Variables for seasonal groups were assessed using Kruskal-Wallis test. A logistic regression model was performed to assess the relationship between patients' main characteristics, season period and the likelihood to have an abnormal McGill Oximetry Score.

RESULTS: Patients recorded during winter were significantly younger ($p < 0.02$), nadir SpO₂ was significantly lower ($p < 0.002$) and DI4 significantly higher than during others seasons ($p < 0.005$). Moreover, patients recorded during winter were nearly 2 times more likely to have an abnormal MOS (aOR 1.949). The logistic regression showed that also younger age ($p < 0.0001$) was associated with a higher risk to find an abnormal pulse oximetry.

CONCLUSIONS: In our study, the winter season confirms to be a critical period for pulse-oximetry and it should be taken into account by clinicians for a correct interpretation of tests. Our data show that also younger age affects the prevalence of abnormal at-home pulse oximetry in children.