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Title: Prevalence of obstructive sleep apnea syndrome in obese children (NANOS study)

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Body: Introduction: The most common cause of Obstructive Sleep Apnea Syndrome (OSAS) in children is the adenotonsillar hypertrophy. The prevalence of OSAS in obese children is unknown. Methods Aim: To determine the prevalence of OSAS in pediatric obese population. Methods: Cross-sectional, prospective, multicenter study. The children included in the study came from general population of Spain, randomly selected, of both sexes between 3 and 14 years and body mass index (BMI) greater than or equal to percentile 95 for age and sex. Medical history, snoring and Chervin questionnaires were performed in all children included, as well as, physical examination, nasopharyngoscopy, polysomnography (PSG) with Co2 recording and blood tests. For the assessment of the sleep stages and respiratory events, the criteria of the AASM (2007), were used. The diagnosis of OSAS was made if the apnea hypopnea index per hour of sleep (AHI) was ≥ 3 . Results 247 children were included: 135 males (54.7%), age from 4 to 14 with an mea age of 10.82 years (SD: 2.71). The mean BMI and the mean BMI Percentile were 28.01 ± 4.72 and 96.82 ± 0.59 respectively. Of the 247 children studied, 122 of them (50.4%), reported the presence of snoring. The mean AHI was 5.60 ± 9.91 . 99 children were diagnosed with OSAS, so the prevalence of OSAS was 40.1% (95% CI 33.8% -46.4%). The prevalence showed no statistically significant differences based on age or sex. The correlation between AHI and BMI was directly and significantly ($r = 0.150$, $p = 0.018$). Conclusions The prevalence of OSAS in obese children from general population is high 40.1%. Obesity in children suggests a possible risk factor for developing OSAS. Funded: SEPAR and Mutua Madrileña.

