Abstract Group: 7.1. Paediatric Respiratory Physiology  
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Title: The effects of obstructive sleep apnea syndrome on cognitive and cardiovascular functioning in children with obesity

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Body: Background: Paediatric obesity and sleep disordered breathing may be associated with cognitive problems and cardiovascular abnormalities and both may share the same common inflammatory and metabolic pathogenesis. Aim: to evaluate and compare cardiovascular activity and cognitive functions of obese children with or without clinical obstructive sleep apnea syndrome (apnea hypopnea index >5 n/h of sleep). Methods: obese children underwent polysomnography in a standard laboratory setting, a neurocognitive assessment and a 24-hour ambulatory blood pressure monitoring. Results: We studied ten children (mean age 9.2±3.2 years, 6 males), with a mean body mass index (BMI) of 27.67 kg/m², a mean BMI percentile of 124.2±20.7. They had a mean apnea-hypopnea index of 9.6±13.6 n/h, an overnight oxygen saturation of 96.9±0.9 %. Mean values of blood pressure did not show relevant differences between diurnal and nocturnal measurements: diurnal systolic and diastolic pressure were 114.8±22.2 and 68.5±10.3 mmHg, while nocturnal systolic and diastolic pressure were 110.7 ±10.9 and 66.1 ±14.3 mmHg. Wechsler Intelligence Scale for Children-revised revealed a mean total intelligent quotient score of 91.3±15.21, a mean verbal intelligent quotient (VIQ) score of 95.7±12.4, and a mean performance intelligence quotient scores of 90.3±20. Compared to those without clinical sleep apnea, children with AHI>5 n/h had a lower VIQ (89.3±9.3 vs 102.0±13.4). Conclusions: Preliminary data showed that obese children had a peculiar blood pressure profile since they did not show the physiologic nocturnal deep. Obese children with obstructive sleep apnea display a specific verbal cognitive dysfunctions.