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Association between inadequate sleep and insulin resistance in obese children.

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OBJECTIVE: To analyze the relationships between sleep duration, obstructive sleep apnea syndrome (OSAS), and markers of insulin resistance in obese children. STUDY DESIGN: Forty obese children were evaluated for sleep-related complaints. Each child underwent a polysomnogram, an oral glucose tolerance test (OGTT), and fasting lipid panel tests. Indices of insulin resistance (HOMA-IR and WBISI) and insulin secretion (IGI) were calculated based on the results of the OGTT. Markers of insulin resistance were compared among groups categorized according to polysomnogram results. RESULTS: Subjects with shorter sleep duration had higher fasting insulin, peak insulin, and HOMA-IR levels and lower WBISI levels, findings suggestive of insulin resistance. In contrast, differences in body mass index z scores were not observed. Subjects with OSAS (32 of 40 children) had higher triglyceride levels and HOMA-IR values than those without OSAS, but did not differ in sleep duration. Multiple linear regression analysis revealed that HOMA-IR was significantly correlated with age, sleep duration, and percentage of rapid-eye-movement sleep. CONCLUSIONS: Insulin resistance in obese children is associated with short sleep duration and OSAS.

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