Abstract
Elevated plasma uric acid levels are associated with obesity and could be an expression of insulin-resistant state. The aim of the present study was to evaluate plasma uric acid in obese and normal-weight children exclusively at prepubertal stage and its relationship with anthropometric measurements, intake, and features of the insulin resistance syndrome. A study was performed in 34 obese and 20 normal-weight prepubertal children. Nutrient intake was determined using a 72 h recall questionnaire and a consumption food frequency questionnaire. Anthropometric parameters and fasting plasma lipids, glucose, insulin, leptin, adiponectin, tumour necrosis factor (TNF-) and uric acid were measured. Multiple regression analysis was used to identify association of anthropometric parameters, nutrient intake and insulin resistance syndrome variables (arterial blood pressure, plasma glucose, insulin, homeostasis model assessment of insulin resistance index- HOMA- triacylglycerols and, HDL-cholesterol) with uric acid. Plasma uric concentration was significantly higher in the obese group than in the control group and when adjusted by sex, age and BMI was positively associated with tricipital skin-fold and insulin resistance, and negatively with adiponectin. In multiple regression analysis, BMI, HDL-cholesterol and adiponectin were independent predictors of plasma uric acid. In conclusion, elevated levels of uric acid in obese children, compared with lean subjects, at the prepubertal period, seems to be an early metabolic alteration that is associated with other features of insulin resistance syndrome.

Keywords
Adipokines, Childhood obesity, Insulin resistance syndrome, Uric acid.