Obesity and metabolic syndrome are prevalent diseases in children. Circulating leptin, adiponectin, tumor necrosis factor alpha (TNF-α), interleukin 6 (IL-6), and gamma-glutamyl transferase (GGT) are markers associated with cardiometabolic diseases in adults. However, there is a lack of scientific evidence in children. Identifying these markers, which are non-invasive, accessible, and allow early detection and treatment of these diseases at an early age, becomes crucial. We examined the association between circulating adipokines and GGT with the metabolic syndrome in Mexican school-age children. The non-probabilistic sample was 140 school children aged 6 to 12 from Nuevo León, México. Nutritional assessment was performed using BMI Z-score from the World Health Organization; the criteria for metabolic syndrome for children and adolescents were from the International Diabetes Federation. Blood samples were obtained by puncturing the antecubital vein with a 12-hour fast. Serum levels of leptin, adiponectin, TNF-α and IL-6 were measured with the Luminex® xMAP® RIA Kit, and the GGT by kinetic reaction with the Dxc Beckman Coulter equipment. A multivariate statistical analysis was carried out to identify the association with the metabolic syndrome, using Student’s T-Test and Simple Linear Regression with the IBM SPSS® software. Results, 60 children (43%) presented overweight/obesity; 33 obese children were diagnosed with metabolic syndrome (55%). Significant differences were found in leptin (30.61 ±18.60 vs. 4.14±3.19 ng/mL; P=0. 00), adiponectin (29.54 ±23.95 vs. 67.71±41.63µg/mL; P=0. 00) and GGT (21.86 ±13.49 vs. 15. 00±2.69 U/L; P=0. 00), between the groups of children with and without obesity; no significant differences were found between IL-6 (5.11±4.30 vs. 4.26±5.30 pg/mL; P=0.31) and TNF-α (6.64±3.66 vs. 5.94±4.47 pg/mL; P=0.32). In children with or without metabolic syndrome we found significant differences in leptin (32.42 ±21.39 vs. 10.26±13.11 ng/mL; P=0. 00) and adiponectin (28. 00±19.98vs. 58.55±41.71µg/mL; P=0. 00), between the groups; no significant differences were found between GGT (18.34±7.77 vs. 17.82±10.18 U/L; P=0.78), IL-6 (5.53 ±4.90 vs. 4.34±4.88 pg/mL; P=0.22) and TNF-α (6.71 ±4.15 vs. 6. 09±4.15 µg/mL; P=0.46). In the Simple Linear Regression analysis, leptin explains 27% of the variance and adiponectin 10% of the variance. The frequency of overweight and obese children with metabolic syndrome is like other studies (1). The levels of TNF-α and IL-6 did not show a significant association in children with obesity and metabolic syndrome. Leptin and adiponectin are significantly associated with metabolic syndrome in children. In our study GGT is not associated with metabolic syndrome. However, we highlight the importance to continue studying the association of these metabolic markers in clinical practice in children. Reference: (1)López-Jaramillo et al., Horm Mol Biol Clin Invest.2014;18(1): 1–9.

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