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A study on Prevalence of Abnormal Glucose Tolerance and Insulin Resistance in Obese Children and Adolescents

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ABSTRACT

Background: Obesity is increasing rapidly in developing countries undergoing rapid nutrition and lifestyle transition. Obesity and associated insulin resistance are considered the main risk factors for developing type 2 diabetes mellitus, regardless of genetic predisposition.

Aims: The aim of this study was to analyze the prevalence of abnormal glucose tolerance and insulin resistance in obese children and adolescents.

Material and Methods: In this prospective case control study, a total of 84 obese children and adolescents were recruited. All patients underwent oral glucose tolerance test (OGTT) with blood samples at 0 and 2nd hour. Fasting insulin and lipid profiles were also estimated in each case.

Results: The prevalence of impaired fasting glycemia (IFG), impaired glucose tolerance (IGT), type 2 diabetes mellitus and normal glucose tolerance was found to be 13.09% (11/84), 15.47% (13/84), 1.19% (1/84) and 80.95% (68/84) respectively. Fasting insulin levels ($P < 0.001$) and insulin resistance calculated by HOMA-IR ($P < 0.001$) were significantly higher in obese children compared to the control group. Obese children had significantly higher serum total cholesterol ($p = 0.002$), triglycerides ($p < 0.001$), LDL-C ($p = 0.003$) and decreased HDL-C ($p < 0.001$) compared to control group.

Conclusions: Insulin resistance is highly prevalent in obese children and adolescents. Therefore, obese individuals are more prone for abnormal glucose tolerance and are to be screened by OGTT.

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