Type II diabetes mellitus and impaired glucose regulation in Caucasian children and adolescents with obesity living in Germany.

Abstract:

BACKGROUND: Recent studies reported an increased prevalence of type II diabetes mellitus in obese children and adolescents, especially in specific ethnic subgroups. The aim of this study was to determine the prevalence of type II diabetes mellitus and impaired glucose regulation in a large group of Caucasian children and adolescents with obesity living in Germany. PATIENTS AND METHODS: A total of 520 subjects (237 boys, 283 girls) (mean age: 14.0 +/- 2.0 y (range 8.9-20.4 y)) with a BMI>97th percentile, BMI-SDS: 2.7 +/- 0.5 (range 1.9-4.6), who were consecutively admitted to an in-patient obesity unit participated in the study. A 2-h oral glucose tolerance test (1.75 mg of glucose per kilogram of body weight) was performed before entering a weight-loss program and capillary blood glucose concentrations were measured. Patients were categorized into normal glucose regulation, impaired fasting glucose (IFG), impaired glucose tolerance (IGT) and diabetes. In addition, fasting venous blood was taken to determine the circulating insulin, C-peptide and lipids. Insulin resistance was estimated by homeostatic model assessment. RESULTS: Type II diabetes was present in 1.5% (n=8) of the patients, two patients were admitted with already diagnosed type II diabetes and six patients were identified with yet unknown diabetes. IFG was detected in 3.7% (n=19) and
IGT in 2.1% (n=11) of the patients. All together, in 6.7% (n=35) (95% confidence interval: 4.7-9.2%) of the patients, impaired glucose regulation (IFG, IGT) or diabetes was identified. These patients had a higher BMI-SDS, higher levels of fasting insulin and C-peptide and a higher insulin resistance index than the patients with normal glucose regulation. Risk factors for the occurrence of impaired glucose regulation were a BMI-SDS>2.5 as well as a positive parents' history for diabetes. CONCLUSIONS: This is the first report on the prevalence of type II diabetes in a large cohort of Caucasian children and adolescents with obesity living in Europe. Impaired glucose regulation and type II diabetes were present in a substantial proportion of the patients studied. Screening for diabetes in severely obese children and adolescents (BMI-SDS>2.5) is therefore recommended. Patients identified with impaired glucose regulation need specific treatment programs in order to prevent progression to diabetes.