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FACTORS INVOLVED KETOACIDOSIS AT ONSET OF TYPE 1 DIABETES IN CHILDREN

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In some patients ketoacidosis at onset of type 1 diabetes has been observed. The aim of this study was to investigate effect of clinical, genetic, immunological and metabolic parameters on occurrence of ketoacidosis at clinical onset of disease. 106 children with type 1 diabetic, aged: 1.8-18.2 years (average 10.6), 40 female and 66 male were studied. Diabetic ketoacidosis was defined as a blood pH of less than 7.35. HLA-DRB1 and DQB1 allele typing (PCR-SSO) was performed and prevalence of –23 HphI INS and CTLA4 gene +49 polymorphisms (PCR-RFLP) were studied. ICA were detected by indirect immunofluorescence and GADA and IA2A by microradioimmunoprecipitation. At diagnosis fasting C-peptide level (radioimmunoassay), the insulin requirement, HbA1c, blood glucose levels and normalized by age and sex body mass index (z-score) were examined. Presence of diabetic ketoacidosis was observed in 55% (58/106) of children. In group of patients with ketoacidosis lower C-peptide level (0.13 pmol/ml) than in children without ketoacidosis (0.2 pmol/ml, $p<0.005$) and lower C-peptide/glycaemia ratio (0.07vs.0.13,$p<0.005$) were observed. Patients with ketoacidosis were characterized by higher exogenous insulin requirement than non-ketoacidosis subjects (1.1 vs. 0.7U/kg/24h, $p<0.002$). Presence of diabetic ketoacidosis was associated with higher HbA1c level (12.3%) as compared to no ketoacidosis group (10.7%,$p<0.05$). In conclusion presence of diabetic ketoacidosis at clinical diagnosis of type 1 diabetes can be mainly related to residual β cell function. Interestingly, residual insulin secretion could protect from ketoacidosis, although not from other clinical symptoms of disease.
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