

PW4-6

Echocardiographic and Biochemical Findings of type 1 diabetic children and adolescents: Cardiovascular risk in diabetic children

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Introduction

The aim of this study is to investigate the cardiovascular risk factors, to determine the atherosclerosis indicators (biochemical and radiological) and the relationship between these factors and metabolic control in children with Type 1 Diabetes Mellitus (DM).

Methods

The study group consists of 55 patients (31 F/ 24M) with Type 1 DM, and we selected 30 (14F/ 16M) healthy children as a control group. Level of HbA1c, lipid profile, HsCRP and adipoectin were measured. For cardiovascular examination, standard echocardiographic values (2D, Doppler), Myocardial performance index (MPI), Carotid intima media thickness (CIMT) and Flow mediated dilation (FMD) were evaluated.

Results

The mean age of DM patients was $17,6\pm 4$ years and $16,43\pm 4,1$ years in the control group. HsCRP values statistically significantly higher in DM patients group ($0,21\pm 0,31$ vs. $0,10\pm 0,16$ mg/l, $p=0,00$) but no difference in the levels of adipoectin ($15,2\pm 6,1$ vs. $15,57\pm 6,49$ mcg/ml) between two groups. The duration of DM has positive correlation with CIMT and negative correlation with FMD measurement. DM group has MPI abnormalities and diastolic dysfunctions of both ventricles ($p=0,01$) in Doppler measurements. FMD measurements were statistically significantly lower in DM patients group but CIMT measurements were statistically significantly higher in DM patients ($p=0,001$). FMD has negative correlation with hsCRP ($r=-0,28, p=0,03$) and adipoectin ($r=-0,27, p=0,04$).

Conclusions

Abnormal measurements in hsCRP, FMD, CIMT, diastolic and systolic dysfunction in this group show that the children with DM have cardiovascular risk in these ages. DM patients have no abnormalities in the standard echocardiographic measurements. However the advanced measurements as hsCRP, MPI, FMD and CIMT show that DM patients have cardiovascular abnormalities. As a conclusion this study shows there is an important necessity of advanced measurements techniques in the follow of the DM patients.