

**Left ventricular function, natriuretic peptide type B and troponin T levels at onset of diabetes type I in children (a pilot study)**

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The incidence of diabetes type I (DB1) have increased dramatically in the last decade in the Nordic countries, especially in the age group 5-9 years. In this age group, insulin resistance may be influenced by factors such as obesity, low grade of physical activity and infections. In animal models, Ljungan virus has been reported to be associated with DB1 and myocarditis. Therefore, one may speculate that there may be an association between onset of DB1 and myocarditis.

**Aim:** To evaluate left ventricular function, natriuretic peptide type B (BNP) values and potential cardiomyocyte damage at the time of onset of diabetes type I in children.

**Methods:** Left ventricular function was evaluated by echocardiography, and blood samples for analysis of BNP in plasma, S-troponin T (TnT), S-creatinine kinase-MB (CKMB) and S-creatinine were taken consecutively, within 48 hours after admission to hospital at the time of the primary diagnosis of diabetes type I in children.

The reference interval for P-BNP was 0-18.4 ng/L, for CKMB <5 mg/L and TnT <0.03 mg/L.

**Results:** Ten children, 6 boys and 4 girls, with a median age of 8.9 years, range 4.4-13.3 years, with primary onset of diabetes type I were recruited to the study. Left ventricular dimensions and ventricular function were within the normal range in the vast majority of the children: left ventricular inner diameter in diastole Z-score, median 0.76 (0.28-1.92) intra-ventricular septum in diastole Z-score, 0.85 (0.26-2.63), left ventricular posterior wall Z-score, -0.15 (-1.69-2.15) left ventricular mass Z-score, 1.33 (-0.72-2.73) and fractional shortening, 36% (31-39). E/A ratio, median 1.6 (1.2-1.9), deceleration time 119 msec (75-168) and iso-volumetric relaxation time, 60 msec (43-69) indicated essentially normal diastolic function.

P-BNP was within the normal range in all the children but one, median 8.1 ng/L (3.2-25.8) and markers for myocytolysis and S-creatinine were normal in all, CKMB 3.0 mg/L (2.0-3.0), TnT mg/L <0.01 and S-creatinine 34 mmol/L (25-52). None of the children had pericardial effusion or any pathological valve regurgitation.

**Conclusion:** Left ventricular function, BNP and TnT values are essentially normal in children at the time of onset of DB1, indicating the freedom of myocarditis.