

Existing Cardiovascular Risk among Children Diagnosed with Type 1 Diabetes Mellitus at the Emergency Clinic

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Abstract : Background: Sweden along with other Nordic countries has the highest incidence of type 1 diabetes mellitus (T1DM) worldwide. The trend is increasing globally. The diagnosis is often given at the emergency clinic when children arrive with cardinal symptom of T1DM. Children with T1DM are known to have an increased risk of microvascular- and macrovascular complications. A family history of cardiovascular complications may further increase their risk. Clinically evident diabetes-related vascular complications are however rarely visible in childhood and adolescence, whereby an intensive diabetes treatment and normoglycemic control is a goal for every child. This study is a risk evaluation of children with T1DM based on their family's cardiovascular history. Method: Since 2005 the Better Diabetes Diagnosis (BDD) study is a nationwide Swedish prospective cohort study that recruits new-onset T1DM who are less than 18 years old at time of diagnosis. For each newly diagnosed child, blood samples are collected for specific HLA genotyping and islet autoantibody assays and their family's cardiovascular history is evaluated. As part of the BDD study, during the years 2010-2013 all children diagnosed with T1DM at the Queen Silvia's Children's Hospital in Sweden were asked about their family's cardiovascular history. Questions regarded maternal and paternal high blood pressure, stroke, and myocardial infarction before the age of 55 years, and hyperlipidemia were answered. A maximum risk score of eight was possible. All children are clinically observed prospectively for early functional and structural abnormalities such as protein uremia, blood pressure, and retinopathy. Results: A total of 275 children aged 0 to 18 years were diagnosed with T1DM at the Queen Silvia's Children's Hospital emergency clinic during this four year period. The participation rate was 99.7%. 26.4% of the children had no hereditary cardiovascular risk factors. 22.7 % had one risk factor and 18.8% had two risk factors. 14.8% had three risk factors. 9.7% had four risk factors and 7.5% had five risk factors or more. Conclusion: Among children with T1DM in Sweden there is a difference in hereditary cardiovascular risk factors. These results indicate that children with T1DM who also have increased hereditary cardiovascular risk factors should be monitored closely with early screening for functional and structural cardiovascular abnormalities. This is a very preliminary and ongoing study which will be complemented with the cardiovascular risk analysis among children without T1DM.

Keywords : children, type I diabetes, emergency clinic, CVD risk

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020