

SUMMARY

Type 1 diabetes is one of the most important public health issues world-wide. It is characterised by usually childhood-onset low insulin levels and hyperglycaemia. The destruction of pancreatic beta cells follows autoimmune or non-autoimmune pathways. In genetically-predisposed people, the autoimmune disorder is triggered by environmental factors (e.g. viruses, toxins, dietary antigens, stress), which begins the process of progressive damage to pancreatic beta cells. In recent years, pre-school-aged children as a group have become particularly at-risk and Poland ranks high in morbidity. So far, no effective method of preventing type 1 diabetes, an autoimmune disease, has been found. Genetics are responsible to a small extent. Studies conducted around the world and extensive metaanalyses highlight the role of environmental factors in the pathogenesis of type 1 diabetes, including the diet of early-years children and perinatal factors.

In line with the above, the goal of the present study is to: 1. estimate the effect of maternal BMI before and during pregnancy on the risk of developing type 1 diabetes in early-years children; 2. analyse factors related to pregnancy and perinatal factors affecting the risk of developing type 1 diabetes; 3. estimate the effect of diet during infancy on the risk of developing type 1 diabetes; 4. estimate the effect of diet in the first year of life on eating habits in children with type 1 diabetes and in healthy children; 5. analyse the effect of diet in the first year of life on management of type 1 diabetes. 150 children diagnosed with type 1 diabetes before their 6th year of life took part in the study.

The subjects included patients of the Teaching Hospital no. 2 in Rzeszów (2nd Paediatrics, Endocrinology and Children's Diabetes Clinic and Endocrinology and Diabetes Clinic) as well as beneficiaries of the Subcarpathian Association of Friends of Children and Adolescents with Diabetes in Rzeszów. The average age of the children with type 1 diabetes was 7,2 years. The control group consisted of 150 children recruited from Private Nursery „Jagódkowo”, Public Nursery no. 43 in Rzeszów, as well as the child alumni of birthing and breastfeeding school Lakta Vita in Rzeszów, with an average age of 4,4 years.

The present study did not find a correlation between maternal BMI during pregnancy, birth weight, and membership in either control or experimental group. The majority of mothers

in both groups were overweight; however, the birth weight of children was normal. Only a small percentage of children were affected by macrosomia. There is a noticeable effect of perinatal factors in the risk of developing diabetes in early years. Environmental factors correlate with the incidence of type 1 diabetes with varied effect size. Children with type 1 diabetes have less often experienced skin-to-skin contact, were exclusively breastfed for a shorter time, and have more often been fed cow's milk, formula, or been mixed fed during their first six months of life. Those who have been exclusively breastfed in their first half a year of life more frequently reach for vegetables, fruit, and whole grains compared to their formula-fed and mixed-fed peers. Children who have been breastfed for a shorter period of time more frequently reach for unhealthy snacks and saturated fats.

Control group children who were breastfed consume leafy greens and fresh legumes more often. Those who have been breastfed for more than 12 months are less likely to prefer salty snacks and animal fats. Diet in the first year of life was found not to be a factor in the management of type 1 diabetes as measured by 12-month average HbA1C levels. However, it was found to be a factor in the presence of diabetic ketoacidosis at diagnosis of diabetes; children exclusively breastfed for 6 months were less likely to experience DKA, on the other hand, children with type 1 diabetes who have been breastfed for over 12 months were more likely to experience diabetic ketoacidosis than those who have been breastfed for a shorter time.

Eating habits and behaviours are influenced by a multitude of factors: health, early flavour experience, family structure, demographic and ethnic background, the dynamics of mealtime, perceived responsibility for child feeding. It is this last factor that is at the discretion of parents and guardians as well as the healthcare system. Properly organised perinatal and paediatric care still has many challenges in this area.