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CYP27B1 AND *PDCD1* POLYMORPHISMS IN POLISH CHILDREN WITH TYPE 1 DIABETES

M. Fichna[1,2], M. Zurawek[1], P. Fichna[3], J. Nowak[1], D. Januszkiewicz[1,4]

[1]Institute of Human Genetics, Polish Academy of Sciences, [2]Department of Endocrinology and Metabolism, [3]Department of Paediatric Endocrinology and Diabetes, [4]Department of Paediatric Oncology, Haematology and Transplantology, University of Medical Sciences, Poznan, Poland

CYP27B1 gene encodes 1alpha-hydroxylase, responsible for conversion of the vitamin D_3 precursor into its most active metabolite, involved in the immune function. Its promoter C(-1260)A polymorphism might affect 1alpha-hydroxylase expression and therefore contribute to autoimmunity. *PDCD1* gene encodes an inhibitory cell-surface receptor, expressed on activated lymphocytes, which plays a role in maintaining immune tolerance. *PDCD1* G7146A variant with putative regulatory function, has previously been associated with various autoimmune disorders. Autoimmune destruction of glandular cells is the main reason of type 1 diabetes (T1D). The aim of this study was to investigate the associations of the *CYP27B1* C(-1260)A and *PDCD1* G7146A polymorphisms with T1D in Polish children. The study comprised 215 T1D patients with mean age 8.3 (±4.3) years compared to 251 healthy controls. Genotyping was performed by PCR-RFLP method, using TfiI and PstI restriction enzymes, respectively. No association with *CYP27B1* polymorphism was found for T1D (p=0.594 and p=0.989 for alleles and genotypes, respectively). The frequencies of alleles and genotypes at the *PDCD1* G7146A polymorphism did not present significant differences between affected subjects and controls (p>0.05). In conclusion, this study presents no association of the *CYP27B1* C(-1260)A and *PDCD1* G7146A polymorphism with T1D risk in Polish children.

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FAMILIAL AGGREGATION AND HERITABILITY OF PYLORIC STENOSIS

C. Krogh[1], T. Fischer[1], L. Skotte[1], R.J. Biggar[1], N. Øyen[1], A. Skytthe[2], S. Goertz[1], K. Christensen[2], J. Wohlfahrt[1], M. Melbye[1]

[1]Department of Epidemiology Research, Statens Serum Institute, Copenhagen S, [2]Institute of Public Health, University of Southern Denmark, Odense, Denmark

Background: Pyloric stenosis is the most common condition requiring surgery in the first months of life. Case reports have suggested familial aggregation. However, to what extent this is caused by common environment or inheritance is unknown.

Aims: To investigate familial aggregation of pyloric stenosis from monozygotic twins to fourth-generation relatives according to sex and maternal and paternal contributions and furthermore to estimate disease heritability.

Methods: A population-based cohort study consisting of 1,999,738 children born in Denmark between 1977 and 2008. The cohort of children was followed for the first year of life during which 3362 children had surgery for pyloric stenosis.

The familial aggregation of pyloric stenosis was evaluated by rate ratios of pyloric stenosis.

Results: The incidence rate (per 1,000 person-years) of pyloric stenosis in the first year of life was 1.8 for singletons and 3.1 for twins. The rate ratios of pyloric stenosis were 182 (95% confidence interval [CI], 70.7-467) for monozygotic twins, 29.4 (95% CI, 9.45-91.5) for dizygotic twins, 18.5 (95% CI, 13.7-25.1) for siblings, 4.99 (95% CI, 2.59-9.65) for half-siblings, 3.06 (95% CI, 2.10-4.44) for cousins, and 1.60 (95% CI, 0.51-4.99) for half-cousins. We found no difference in the rate ratio for maternal and paternal relatives of a pyloric stenosis case and no difference according to own sex or sex of relative. The heritability of pyloric stenosis was 87%.

Conclusion: Onset of pyloric stenosis in Danish children showed strong familial aggregation and heritability.