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Childhood infections and risk of type 1 diabetes in Tlemcen, Northwest Algeria

S Khater¹, A Aouar¹, H Hamdaoui¹, A Moussouni¹, Z Moqaddem¹, D Belkhatir¹, H Bouazza¹ and N Chabni²

¹University of Abou Beker Belkaid, Algeria

²Tlemcen University Teaching Hospital, Algeria

Background: Type 1 diabetes is an autoimmune multifactorial disease caused by a complex interaction of genetic and environmental factors. Several studies have shown that viral infections cause the onset of type 1 diabetes by inducing immune responses that can damage β - cells.

Aim: This study aims to examine the interaction between type 1 diabetes and childhood viral infections in children of Tlemcen in northwest Algeria.

Patients and Methods: This is a case-control study of a population of 338 children under the age of 15 years, including 137 diabetic children and 201 controls children, living in Tlemcen in Western Algeria. The data were collected using questionnaires submitted by a physician to the parents of the cases and controls, from February to May 2018. The data were analyzed by a logistic regression processed by Minitab.16 software.

Results: The total frequency of exposure to childhood infections (varicella, measles, rubella, mumps or tonsillitis) in early childhood is higher in diabetic children (81.75%) than in controls (66.66%), $p=0.003$. The risk of type 1 diabetes for children exposed to a single infection was only statistically significantly for rubella ($p=0.016$), odds ratio: confidence interval (CI) (OR: 3.73, 95% CI, 1.28-10.88). However, if two or more infections was contracted during the years before the onset of diabetes, the risk increases significantly ($p=0.000$), (OR: 3.33, 95% CI, 1.92-5.78).

Conclusion: The high prevalence of infectious diseases among young children in Tlemcen's population may explain the development of type 1 diabetes in children in this region.