



## Enterovirus infections are associated with the induction of beta-cell autoimmunity in a prospective birth cohort study.

<https://arctichealth.org/en/permalink/ahliterature187748>

Author: Kimmo Salminen  
Karita Sadeharju  
Maria Lönnrot  
Paula Vähäsalo  
Antti Kupila  
Sari Korhonen  
Jorma Ilonen  
Olli Simell  
Mikael Knip  
Heikki Hyöty

Author Affiliation: Juvenile Diabetes Research Foundation Center for Prevention of Type 1 Diabetes in Finland.

Source: J Med Virol. 2003 Jan;69(1):91-8

Date: Jan-2003

Language: English

Publication Type: Article

Keywords: Adenoviridae Infections - immunology - virology  
Antibodies, Viral - blood  
Autoantibodies - blood  
Autoimmunity  
Cohort Studies  
Diabetes Mellitus, Type 1 - complications - epidemiology - immunology - virology  
Enterovirus Infections - complications - epidemiology  
Female  
Finland - epidemiology  
Humans  
Immunoglobulin A - blood  
Immunoglobulin G - blood  
Infant  
Infant, Newborn  
Male  
Prospective Studies  
Reverse Transcriptase Polymerase Chain Reaction

Abstract:

Enterovirus infections have been associated with the manifestation of clinical type 1 diabetes in a number of reports, and recent prospective studies have suggested that enterovirus infections may initiate the autoimmune process, leading to the disease. In the present study, we analyzed the role of enterovirus infections in a Finnish birth cohort study, Diabetes Prediction and Prevention (DIPP), in which all newborn infants are screened for diabetes-associated HLA-DQB1 alleles, and those with an increased genetic risk are invited for prospective follow-up. Enterovirus infections were diagnosed by serology and reverse transcriptase-polymerase chain reaction (RT-PCR) from serum samples taken from birth every 3-6 months. Case children included 41 infants who became positive for diabetes-associated autoantibodies during the observation. Control children comprised altogether 196 infants who remained autoantibody negative and were matched for the time of birth, sex, and HLA-DQB1 alleles. Enterovirus infections were more frequent in case children than in control children ( $P = 0.004$ ), and the average enterovirus antibody levels were also higher in the case children ( $P = 0.003$ ). Enterovirus infections were particularly frequent during the 6-month period preceding the first detection of autoantibodies: 51% of the case children compared with 28% of the control children had an infection in that time interval ( $P = 0.003$ ). There was no difference in the frequency of adenovirus infections between the groups ( $P = 0.9$ ). The present results imply that enterovirus infections are associated with the appearance of beta-cell autoantibodies. A possible causal relationship is supported by the clustering of infections to the time when autoantibodies appeared.

PubMed ID:

12436483 [View in PubMed](#) 