

12th World Congress on

VIROLOGY

October 16-17, 2017 Baltimore, USA

Coxsackievirus infection during gravidity enhances the pathophysiological process in pups after challenge infection with the same virus

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Statement of the Problem: Enteroviruses are distributed worldwide. Very often infections caused by these viruses go unnoticed due to subclinical course. In a pregnant woman such infections remain frequently undiagnosed, because of mild and non-specific manifestations. In neonates, however, coxsackie B virus (CVB) infections can cause a sepsis syndrome, sometimes followed by severe disease and death. Moreover, seroepidemiological studies relate CVB infections during pregnancy with increased risk for childhood-onset type 1 diabetes.

Aim: The objective of this study was to follow-up the pathophysiological process after coxsackievirus infection in offspring born to dams infected with the same virus in the first, second and third week of gravidity.

Methodology & Theoretical Orientation: The selected organ tissues (pancreas and heart) of pups orally infected with CVB4-E2 were analyzed for viral RNA, quantification of RNA copies and histopathological changes. Furthermore, analysis of multiple cytokines induced simultaneously in sera of these mice was performed.

Findings: Independent of the copies of RNA which were observed in the heart and pancreas of the challenged offspring, we observed histopathological changes only in the pancreas of the challenged pups. After oral infection, we observed inflammation of the Islets of Langerhans, the endocrine tissue of the pancreas for the first time. The inflammation was present in the offspring of the mice infected in the third week of gravidity.

Conclusion & Significance: We conclude that infection during gravidity enhances the pathophysiological process especially in the pancreas, and the time of infection during gravidity may also rule the intensity of the infection, which may be enhanced by the innate and adaptive immune responses.

This work was supported by the National Reference Center for Identification of Enteroviruses

Biography

Sona Sarmirova is a Virologist presently working at the Enterovirus Laboratory and the National Reference Center for Identification of Enteroviruses at the Medical Faculty of the Slovak Medical University in Bratislava. She has completed her BSc, MSc and PhD degrees in Virology from Comenius University in Bratislava, Faculty of Natural Sciences. Her PhD research was focused on the study of the influence of a challenge infection in the offspring of experimentally infected mice during the gestation period.

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