

Influence of interferon beta-1a on neurons of central nervous system and immune organs after initiation of demyelination and remyelination

Nataliia O. Melnyk

National O.O.Bogomolets medical university, Ukraine



Abstract

In experimental work was investigate morphological changers of neurons and myelinated nerve fibers in organs of central nervous system (CNS), organs of immune system - thymus and spleen, after initiation of experimental model of demyelination and remyelination.

The model of demyelination - EAE (experimental allergic encephalomyelitis) in rats, was use to investigation of changers of neurons in cortex of cerebrum, cerebellum and spinal cord on 21 days and 39 days. After staining of histological sections of the brain and spinal cord by toluidine blue and cresyl violet, we observed the percentage of neurons with unmodified, moderate and severe structural changes. We studied of demyelination process of nervous fibers in organs of CNS by the methods of electron microscopy and morphometry. After influence of Rebif® (interferon beta-1a) by 2 weeks, we observed of remyelination process - the percentage of normal neurons in the brain and spinal cord was increased, the amounts of neurons with severe and destructive changes were reduce and myelinated nerve fibers was regenerate.

In thymus and spleen was observe structure changes – formation large nodules in spleen, activations of thymus – formation of small nodules in cortical parts of lobules. Was observe correlations between structural changes in organs of CNS and organs of immune system.



Biography

Nataliia O. Melnyk - the Professor of the Histology and Embryology Department of National O.O.Bogomolets Medical University, the Main Scientist in the Institute of Genetic and Regenerative Medicine National Academy of Medical Sciences of Ukraine, Kyiv. Graduated from Kyiv National Taras Shevchenko University in 1993, after an assignment she worked as an engineer in the Institute of Molecular Biology and Genetics. During 2008-2011, she worked as Deputy Head of the Department of Education and Methodology of the National O.O. Bogomolets Medical University. She has more than 380 scientific and methodological works, 5 patents of scientific research. Nataliia Melnyk was edited base textbook of Histology, Cytology and Embryology for students of medical universities in Ukraine and Atlas of Histology, Cytology and Embryology for students of medical universities in Ukraine.

Publication

- “The activity of antioxidant enzymes in rat sciatic nerve following a hemorrhagic stroke”. I. M. Dovgan, Nataliia Melnyk, Irina Labunets, N. A. Utko, Sergey Savosko. World of Medicine and Biology 13(61):100.
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