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Influence of interferon on immune and nervous systems after initiation of experimental allergic encephalomyelitis in rats.

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Was investigate morphological changers in organs of immune system– thymus and spleen and in organs of central nervous system (CNS) – spinal cord, cerebrum and cerebellum after initiation of experimental allergic encephalomyelitis (EAE) in rats. Experimental model (EAE) was use in observe changers of demyelination and remyelination in neurons and nerve fibers of central nervous system (CNS) on 21 days and 39 days.

Histological sections of the spinal cord, cerebrum and cerebellum was stain by cresyl violet and toluidine blue (by Nissl). Histological sections of thymus and spleen was stain hematoxylin – eosin and azure II-eosin. Was investigate demyelination and remyelination in nervous fibers by methods of electron microscopy and morphometry.

After initiation of EAE reactive changers in thymus was include – formation of small nodules in cortical part of lobules, decrease amount of lymphocytes in cortex of lobules in early period on 21 days. In late period – 39 days after initiation EAE and influence of Rebif® (interferon beta-1a) by 2 weeks was observe increase amount of lymphocytes in cortex.

Reactive changers in spleen was include increase amount of lymphoblasts and white pulp in parenchyma. After influence of Rebif® (interferon beta-1a) by 2 weeks, we observed process of remyelination. We observed the percentage of neurons with unmodified, moderate and severe structural changes, changers of myelinated and unmyelinated nervous fibers.

In late period of EAE (39 days), after influence of Rebif (interferon beta-1a) - myelinated nerve fibers was regenerate and the percentage of normal neurons in the brain and spinal cord was increased, the amounts of neurons with severe and destructive changes were reduce.

Our investigation formed characteristics of reactive changers in the central and peripheral organs of immune system, demyelination process in different periods in EAE condition.

Key words: demyelination, experimental allergic encephalomyelitis, multiple sclerosis, thymus, spleen.