

Abstract	Abstract Title	Status	Submit Date
0136	Condition adrenergic innervation and contractility of the lymphatics toxic hepatitis	[R1]Accepted:Poster Presentation	01.03.2016 15:27:26
Email	04.03.2016 11:31:25	European Biotechnology Congress 2016-About Your Abstract	
Email	23.02.2016 14:11:24	European Biotechnology Congress 2016-About Your Abstract	

STATE OF ADRENERGIC INNERVATION AND CONTRACTILITY OF LYMPHATICS UNDER TOXIC HEPATITIS

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Multifunctionality of the lymphatic system defines its importance for supporting homeostasis in the body. The aim of the present research is to study the functional properties of the lymphatic system under the toxic hepatitis induced by CCl₄.

The results of the research showed that the adrenergic innervation of pancreas of an intact rat is presented in the form of a plexus around blood vessels and the main duct. In rats with toxic hepatitis disturbance of intraorganic adrenergic innervation has been identified. In various parts of pancreas destruction of nerve fibers and catecholamines diffusion from varicose thickenings of independent nervous fibers as well as of accompanying gland microvessels were detected.

Under the toxic hepatitis in the paries of the thoracic duct, intestinal lymphatic trunk and in the capsule of the lymph nodes fragmentation of nerve fibers, almost complete disappearance of the terminal fibers and disturbance of the integrity of preterminal part with a decrease in the number of varicose thickenings that are depot of catecholamines were observed. In addition, in the capsule of the lymph nodes of rats a strong blood supply, dilation of small blood vessels were observed. Spontaneous contractile activity of isolated mesenteric and cervical lymph nodes in intact rats was expressed in the form of a phasic rhythmic contractions. In rats with toxic hepatitis spontaneous contractile activity was significantly depressed, in some of the experiments slow tonic waves appeared. In the control group under the action of adrenaline, acetylcholine and histamine (1×10^{-8} - 1×10^{-3} M) on mesenteric nodes contractile responses were observed with an increasing amplitude and frequency of contractions. Irritation threshold for vasoactive substances was 10-8M. Thus, toxic hepatitis in rats causes disturbance of adrenergic innervation of blood and lymphatic vessels, nodes, and pancreas. On the background of the toxic hepatitis development destruction of adrenergic fibers of pancreas, blood and lymph nodes and vessels was observed, which indicates the reduction of mediator-effector transmission of pulses. During the toxic hepatitis spontaneous and induced contractile activity of the lymph nodes is depressed, resulting in the deterioration of drainage and transporting function of the lymphatic system and causing metabolic disturbances identified by us that negatively impacts the state of smooth muscle cells membranes of the lymph nodes.