



Morphological Changes in the Kidneys in Easy Degree of Cranio-Brain Injury

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Annotation: This thesis provides information on the results of scientific research to assess and study the features of the morphology of the kidneys of 3-month-old white outbred rats on the 1st and 3rd days of a mild degree of acute period of traumatic brain injury.

Key words: traumatic brain injury, kidney, dystrophy, morphological features.

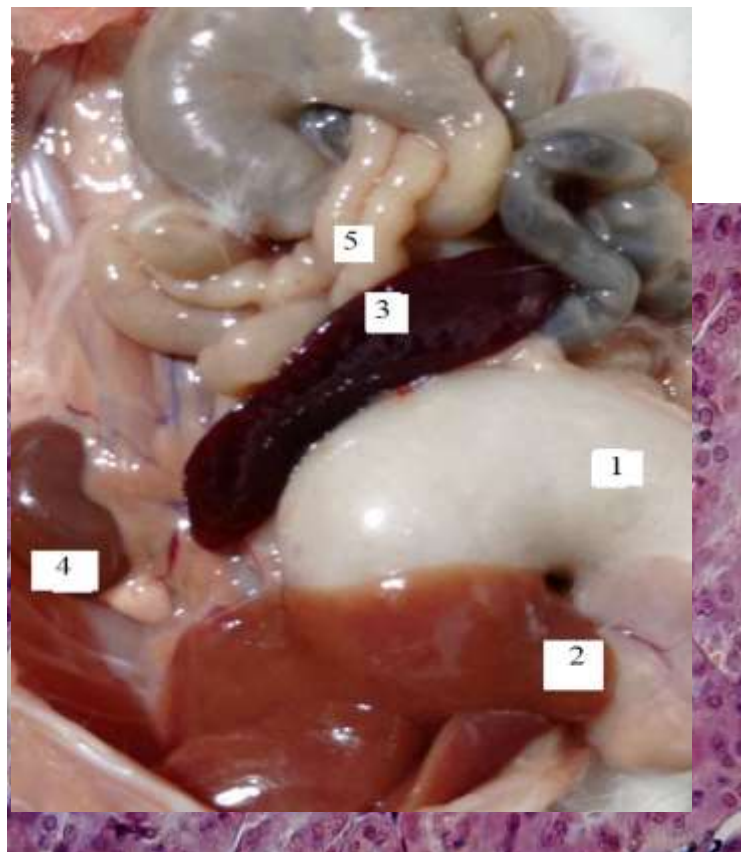
Relevance: Currently, to ensure the safety of the inhabitants of the whole world and the provision of qualified assistance in emergency situations, it is an urgent problem of disaster medicine [1,5]. The main causes of mortality from traumatic brain injury were road traffic accidents [3]. In many countries, deaths from car accidents are second only to cardiovascular diseases. Among all injuries, traumatic brain injury still remains one of the leading causes of death and disability in most countries of the world. According to the analysis of statistical data, the main 30-50% of deaths after all types of injuries are accounted for by craniocerebral injuries. The main contingent of victims of traumatic brain injury are people of working age from 20 to 50 years [2,6].

The severity of the disease and high mortality after traumatic brain injury are mainly associated with the development of intracranial and extracranial complications. Clinical studies show that among extracranial complications in victims, the literature shows the frequent development of purulent-inflammatory processes in the form of cystopyelitis, renal failure in the urinary tract [4,7].

Materials and research methods. For our research, laboratory white outbred rats were used: 20 individuals of three months of age. Laboratory animals were kept in a vivarium in plastic cages with small wood shavings with a 12-hour change of light and dark. All animals of the experimental groups were divided into 2 groups, that is, the first group consisted of animals that did not cause injury (control, n = 10), and the second group consisted of (experimental, n = 10) - animals that were fixed in the installation and suffered a craniocerebral brain injury. The traumatic brain injury was caused by the "traffic accident" method. During the experiment, on the 1st and 3rd days after the infliction of a craniocerebral injury, under the influence of light ether anesthesia, all animals were decapitated, the abdominal cavity was opened, and the kidneys were separated for further macroscopic, microscopic examination. Microscopic preparations were stained with hematoxylin and eosin.



Results and discussions. The kidneys of 3-month-old rats of the experimental group were smooth bean-shaped organs and red-brown in color. In the kidney, a convex lateral and somewhat concave medial edge is distinguished, and outside the kidney is covered with a dense fibrous connective tissue and mild fatty membranes, a serous membrane lying on the ventral surface of the organ. (1-picture). Histological image of the kidneys after the 1st day of injury, there is vasodilation, venous plethora and massive hemorrhage. On the 3rd day after the inflicted craniocerebral injury in all animals of the experimental groups, pronounced hemodynamic disturbances and a violation of the hemodynamics of the vessels, as well as the occurrence of a metabolic-dystrophic phenomenon, are observed. Thus, mild traumatic brain injury



Picture-1. Topographic location of the kidneys of 3-month-old rats after a 1-day mild traumatic brain injury. 1- stomach, 2- liver, 3- spleen, 4- kidneys, 5- small intestine.

Picture-2. The cortex of the kidneys of 3-month-old rats in the control group. Hematoxylin-eosin staining. OK 10xOB 40. 1-glomerulus, 2-cavity of the capsule, 3-vascular pole of the renal corpuscle, 4-distal curved tubular, 5-proximal curved tubular. practically do not lead to visible macroscopic changes with side of the kidneys and other organs adjacent to it.

The study of histological preparations of the kidneys of rats after a mild traumatic brain injury revealed pronounced changes in blood flow and structural changes in the



kidney parenchyma, in particular, there was an expansion of capillaries and veins, focal hemorrhages in the acute period of traumatic brain injury. And in turn, these changes lead to violations of the hemodynamics of blood vessels, as well as metabolic-dystrophic changes, which eventually end in kidney failure.

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