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Specific Morphofunctional Characteristics of the Kidney Caused by Brain Damage in Various Emergency Situations

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Annotation: Specific morphofunctional characteristics of the kidney caused by brain damage in various emergency situations. During the rapid development of technical development in the world, among other injuries, the formation of brain injuries and subsequent complications has become an urgent problem at the level of the state and society. It can be seen in a number of studies that it gained great importance especially at the end of the 20th century.

Key words: kidney, serious complications, Traumatic brain injury, neurotraumatism, Bladder infections, Staphylococcus saprophyticus, Enterococcus faecalis, Streptococcus agalactiae.

Among a number of injuries, traumatic brain injury (TBI) is one of the main problems of any country's health system and social importance due to its frequent occurrence and serious complications. It is also one of the main causes of human death compared to other injuries. Although brain injury is not inferior to cardiovascular, oncological and infectious diseases, it is far ahead of them in terms of the amount of premature death. It has been reported that brain injuries are 10 times more likely to cause death after cardiovascular disease and 20 times more than death after cancer among individuals under 30-40 years of age. Traumatic brain injury is the leading cause of death and disability among people under 45.

Brain injury is considered one of the main problems causing morbidity and mortality in developed countries.

The problem of brain injury is not only in the field of multidisciplinary practical and experimental medicine, but also the age of patients and the funds needed for their treatment make it a problem of significant socio-economic. According to studies conducted on brain injuries, the etiological factors vary significantly due to social, demographic, geographic, climatic and other factors. In the study of the causes and prevalence of head injury, its dependence on sex, age, use, alcohol and other factors play an important role for epidemiological studies conducted among the population. In a series of studies on the occurrence of brain injuries, it is reported that it is 2-3 times higher among men than among women.

The fact that 30-40 percent of human organ and tissue injuries are brain injuries, high disability rate, frequent occurrence makes neurotraumatism a priority. We can see the proof of this in the fact that every year in the world 1.5 million people die from IBD, and 2.4 million people become disabled.

Many studies point out that it is necessary to consider brain damage not as a locally limited organic process, but as a process that causes damage to the central nervous system of the whole organism. In the last century of XX-XXI century, medical-biological integrative neuroimmunoendocrinology was formed. The close interaction of the nervous, immune, and endocrine systems has been emphasized over a long period of evolution and is most clearly an adaptive response that develops in response to any disruption of homeostasis. The leading component of the single neuroendocrine system is the mammalian integrative system hypothalamo-pituitary-adrenal system (GGBT).

According to the results of the study, 30-50% of survivors of brain injuries developed endocrine diseases. Disorders of the hypothalamo-pituitary system significantly affect the course of trauma and

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the consequences that arise after trauma. Many literatures contain information about pituitary insufficiency and water-electrolyte exchange disorders in the acute period of brain injury.

At the same time, a chain of neurohumoral changes, i.e., GGBT mobilization and endogenous release of catecholamines, specific reactions of adrenocorticotropic (ACTG), antidiuretic (ADG), and thyrotropin hormones (TTG) of the thyroid gland have been determined in response to any serious, severe brain damage.

Active changes in the body's immune system have been identified in modern research data after brain injuries. Together with changes in the immune system, neuroinflammation is one of the main components of the pathophysiology of brain injury, and it has been noted that it leads to the formation of secondary complications and drastic changes in recovery processes .

In research materials on neurovegetative disorders, brain injury causes cognitive impairment in the brain, which is very important for people and society. Therefore, these disorders occupy a certain place along with many pathologies .

Statistical data on brain injury and its results in different age groups of the population serve as a basis for the development of regional and national programs to reduce the negative multifaceted effects of the common large number of injuries. The main goal of these studies is to establish a scientifically based system for the prevention of brain injuries, to eliminate or reduce the risk factors that are the basis for their occurrence, and to further improve medical care in order to improve the results of brain injuries .

Interdisciplinary programs have been developed to minimize damage to the body as a result of brain injury, including the following clinical and epidemiological examples:

a) to determine the state of brain damage in a certain population;

b) determining the role of various risk factors in brain damage;

c) development of methods of prevention and implementation of organizational measures that ensure improvement of specialized assistance to this contingent of victims among the population living in a certain administrative area .

It should be noted that as a result of the important socio-economic changes that have taken place in the last decades all over the world, the importance of the researches on the epidemiology of brain injuries, taking into account the regional characteristics of improving the health of the population, measures to further improve medical care are increasing . The relevance of such research in today's technologically advanced era is determined by the fact that in recent decades, significant progress has been made in improving brain injury outcomes through the use of evidence-based medical and diagnostic recommendations. In this, the main and important aspect is occupied by the measures implemented on the organization of scientifically based emergency medical care .

According to a number of scientific sources, kidney pathologies make up about 5.5-6.0% of all diseases. At the same time, according to the screening data with detailed information, about 7-10 percent of the elderly population has one or another kidney pathology. Such cases related to kidney diseases are explained by not paying enough attention to the diagnosis of kidney diseases, "non-appearance" or "indeterminacy" of clinical signs during the period from the onset of the disease to the referral to a doctor .

In the literature, acute and chronic glomerulonephritis and pyelonephritis, as well as nephrotic syndromes of various etiologies, are cited as the largest percentage of misdiagnosis .

As E.A. Kvyatkovskiy (2005) noted, the main causes of deficiencies and errors in the diagnosis of kidney diseases are the presence of a certain similarity in the clinical manifestations of a number of

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kidney diseases, the lack of a clear connection between the clinical and functional indicators of the disease and pathomorphological changes in the kidney. . In most cases, diseases causing mild and lesser pathomorphological changes in the kidneys correspond to their specific clinical symptoms. In addition, in some cases, significant morphological changes caused by kidney pathologies are accompanied by laboratory and clinical data, which are manifested by slow changes, which is an indicator of the mobilization of reserve capabilities of this organ .

In the process of differential diagnosis of kidney diseases, despite the widespread use of many research methods used in the field of modern clinical nephrology, the number of wrong diagnoses still remains high. Most of these ongoing studies are unfortunately related to the excretory function of the kidney .

The development of reactive changes in the kidney caused by external factors is a response of this organ against any stress, like other organs. G. stress. Sele described as follows: "Stress is a state of non-specific tension in living matter, which is manifested by real morphological changes and adaptations in various organs" .

Models of experimental pathology of the kidneys and the non-specific reaction of the organism due to the direct effect of pharmacological drugs on them and the gradual formation of the "adaptation syndrome" are based on the rules of stress. Morpho-functional balance in the kidneys occurs in the initial stages of the formation of response reactions .

In the studies conducted in mammals, the pathomorphological changes in the development of kidney pathologies, which are considered an important part of the excretory system, and also the role of stress were evaluated . The degree of impact of stress on the kidneys of adults and pregnant women was studied, according to which it was proved the formation of morphological changes characterizing "urgent adaptation" between the inter-nephron and the subcapsular and supramedullary parts, which are the basis of the internal structure of the nephron. They, in turn, have been found to cause an increase in the filtration process in the kidneys, blood clotting in the blood vessels, interstitial reactions of the nephron tubules, and disruption of the epithelial layer of the nephron tubules .

Morphological signs of development of nephron adaptation and disadaptation were studied during the analysis of literature sources on changes caused by stress. According to him, it is emphasized that different levels of morpho-functional states in the tissue are functionally dependent on the strength of stress and the duration of the effect, the process of disadaptation and the failure of adaptation. In the results of other similar studies, the quantitative ratio of nephrons in various diseases observed in the kidney represents compensated and decompensated states as a biological system, which is directly related to the appearance and severity of certain clinical and functional manifestations common to various nosologies of kidney pathology .

Disturbance of the kidney structure has been revealed by the administration of pharmacological drugs, leading to functional stress on the kidneys .

Thus, traumatic brain injury is the leading cause of death and disability among the population under 45 years of age, 1.5 million people die from brain trauma every year and 2.4 million people become disabled, and 30-50% of survivors development of endocrine diseases in 10% of cases, in which the disruption of the hypothalamo-pituitary system has a significant impact on the course of trauma and the consequences after trauma, hypophysis deficiency and water-electrolyte exchange disorders, according to which there is an "urgent adaptation" between the subcapsular and supramedullary parts, which are the basis of the inter-nephron and nephron internal structure The formation of morphological changes that characterize " Despite the problems studied above, there is insufficient information on morpho-functional, biochemical, topographical changes in the kidneys after brain injuries, and what is available has been studied up to the level of the nephron. The study of filtration process, changes in

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blood vessels, changes in Shumlyansky Bowman's capsule and vascular ball, and changes in canal structures in post-traumatic kidneys requires in-depth analysis.

During the analysis of scientific research on injuries by our country and foreign research scientists, we witnessed that there are insufficient studies on the occurrence of extracranial complications after brain injury, its structure, social and hygienic risk factors, and the level of organization of medical care. Lack of these data and extra- and intracranial complications after brain damage, especially acute renal failure (AKI), make it necessary to improve the effectiveness of the medical care system for patients with advanced pathomorphological and pathophysiological changes in the circulatory system.

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