



MORPHOFUNCTIONAL CHANGES IN THE TESTES IN ACUTE BRAIN INJURY

Rakhimova Gulnoz Shamsievna

Bukhara state medical institute, Uzbekistan

<https://doi.org/10.5281/zenodo.11353182>

Relevance: Traumatic brain injury is one of the most important aspects of medical research, due to the greater frequency, difficulties in diagnosis and severity of its course, often with a fatal outcome. It has a generalized effect on the body, causing a general adaptive response, manifested in a complex of pathophysiological, biochemical and morphofunctional changes not only in the area of direct mechanical damage, but also in the nervous, endocrine, cardiovascular and other systems. Mostly men die or become disabled from this injury, and more often at working age, which gives the whole problem a social significance.

Purpose of the study: was to characterize the pathomorphological and morphofunctional changes in the testes in rats after traumatic brain injury in the experiment.

Materials and methods of research: As the object of this study, 150 mature male rats weighing 115-150 grams and 90 days old were selected. During the experiment, rats were first anesthetized with isoflurane, while the induction to achieve mild anesthesia was 1-2 minutes, the state was determined by the reflex reaction to pinching the rat's tail. After that, the rat was attached to a square platform, a soft pad was placed on the jaw to prevent jaw fracture, and the platform was released. Due to the effect of the inertia of the weight and the angle of inclination, the platform that was released downwards hit the barrier. At this time, the rats received brain damage of varying severity. For morphological studies, testis fragments were fixed in 10% formalin with pH=7.2 for several hours, which were then washed under running water for an hour. According to the standard, alcohol in high concentrations was poured into paraffin blocks after dehydration. Using a MS-2 microtome, cross sections of 4-6 × 10-6 m were formed and rehydration was carried out using the standard deparaffinization method. It was stained with hematoxylin-eosin, as well as Van Gieson pyrofoxine for microscopy of connective tissue components.

Results and discussions: We investigated morphological changes in the testis tissue of white mongrel rats at different times after acute traumatic brain injury. Changes in the testes varied on the first, third, and seventh days after experimental traumatic brain injury, as well as after correction with





neuroprotectors. When measuring the connective tissue of the testes, an increase in the protein envelope in size was noted, respectively, in the trabeculae and septa of the testis. At the same time, there was a decrease in gland cells, i.e. Sertoli cells, Leydig cells, spermatogonia, spermatocytes and spermatids.

Conclusion: In the acute period of traumatic brain injury, structural changes develop in the testicles, affecting all their constituent parts: tubular apparatus, stroma, endocrine structures. The greatest changes are observed in the epithelial-spermatogenic layer of the convoluted seminiferous tubules, the changes of which are directly proportional to the duration of the course of the craniocerebral brain injury. Morphological indicators of damage to the epithelial-spermatogenic layer in the acute period of traumatic brain injury are: a decrease in the number of spermatogenic cells (up to their complete disappearance from the seminiferous tubules), an increase in the wall thickness of the tubules due to increased peritubular sclerosis.

References:

1. Gasco V, Cambria V, Bioletto F, Ghigo E, Grottoli S. Traumatic Brain Injury as Frequent Cause of Hypopituitarism and Growth Hormone Deficiency: Epidemiology, Diagnosis, and Treatment. *Front Endocrinol (Lausanne)*. 2021;12:634415.
2. Tanriverdi F, De Bellis A, Bizzarro A, Sinisi AA, Bellastella G, Pane E, et al. Antipituitary antibodies after traumatic brain injury: Is head traumainduced pituitary dysfunction associated with autoimmunity? *Eur J Endocrinol* (2008) 159(1):7–13.
3. Shamsievna R. G. Modern Aspects of Studying the Features of Morphofunctional Characteristics of Testes under Various Factor Influences //Eurasian Scientific Herald. – 2022. – T. 7. – С. 279-286
4. Rakhimova G. MODELING OF ACUTE TRAUMATIC BRAIN INJURY IN WHITE MONGREL RATS //Академические исследования в современной науке. – 2022. – Т. 1. – №. 19. – С. 206-208.
5. Shamsievna, R. G. (2023). The Leading Mechanisms of the Pathophysiology of Traumatic Brain Injuries. *Scholastic: Journal of Natural and Medical Education*, 2(3), 115–119.
6. Shamsiyevna, Raximova Gulnoz. "O'tkir Bosh Miya Shikastlanishidan Keyingi Gipopituitarizmda Skrining Mezonlari." *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI 2.5* (2023): 239-242.





7. Shamsievna R. G. Secondary Tissue Damage in Acute Traumatic Brain Injury //Web of Synergy: International Interdisciplinary Research Journal. – 2023. – T. 2. – №. 5. – C. 469-473.
8. G. Sh., R. (2023). Morphometric Studies of the Testes of White Mongrel Rats in the Acute Stage of Traumatic Brain Injury. International Journal of Integrative and Modern Medicine, 1(2), 57–60

