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INTERNATIONAL SCIENTIFIC UNITY



**XLVI INTERNATIONAL
SCIENTIFIC AND
PRACTICAL CONFERENCE
«Scientific Research in the
Era of Digital Technologies:
Challenges and
Opportunities»**

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EXPRESSION OF IMMUNOHISTOCHEMICAL MARKERS IN RATS WITH INFRAVESICAL OBSTRUCTION AFTER ADMINISTRATION OF BIOLOGICALLY ACTIVE COMPOSITIONS CONTAINING NEUROTROPHIC FACTORS

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The aim of the study was to investigate the immunohistochemical characteristics of the bladder (UB) of rats with infravesical obstruction (IVO) after intraperitoneal administration of biologically active compositions (BACs) (conditioned media (CM) of native and cryopreserved cultures of mantle gliocytes (MG) obtained from the spinal ganglia (SG)).

Methods. IVO was reproduced by surgical ligation. BACs were intraperitoneally injected for 10 days. The relative area of expression of S100 protein and actin, as markers of bladder nerve and smooth muscle cells, was calculated. The experimental animals were divided into groups as follows: 1 - intact control (n=15); 2 - CM from the culture of native MG (n=7); 3 - CM from the culture of cryopreserved MG (n=6); 4 - animals with IVO without treatment (n=15).

Results. BACs obtained from the culture of native and cryopreserved MG were involved in the remodelling of the bladder structure, which changed during IVO. Visual assessment of the UB tissue specimens subjected to immunohistochemical labelling with antibodies to S100 protein and actin revealed an increase in the relative area of positive labelling in animals of groups 2 and 3 compared to group 4

(untreated). Statistical analysis demonstrated an increase in the relative area of expression of the studied markers of nervous and muscle structures by both indicators in animals of group 2 by 91.6% and 78.9% ($p = 0.004$; $p = 0.002$, respectively) compared to group 4 (without treatment). A somewhat different trend was observed when comparing the results of group 3. A statistically insignificant increase in the relative area of S100 protein expression in the UB tissues ($p > 0.05$) and a significantly higher expression of actin by 78.8% ($p = 0.001$) were found compared to the untreated group.

Conclusions. The positive effect of neurotrophic factors contained in the secretions of native/cryopreserved SG cell cultures on the expression of immunohistochemical markers of nerve and smooth muscle cells of the bladder in the course of IVO in rats has been found. It has been determined that cryopreservation affects the nature of the biological activity of the secretions of SG cell culture. At the same time, the administration of CM of cryopreserved culture has been proved to be effective in correcting the effects of IVO and similar to the effect of CM of native culture.

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