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CHANGES IN THE AREA OCCUPIED BY CK5⁺ EPITHELIORETICULAR CELLS IN THE THYMUS OF RATS UNDER NORMAL CONDITIONS AND AFTER PRENATAL DEXAMETHASONE ADMINISTRATION

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Introductions: the state of the thymus in newborns depends on antenatal activation of the pituitary-adrenal system, leading to an increase in corticosteroid levels in the blood. Mechanisms of thymus dysfunction involve not only the loss of the thymic lymphoid component but also alterations in the architecture of the epithelial stroma due to changes in the expression of cytokeratins. This is crucial for the formation of the necessary microenvironment in the thymus.

Aim: to study the dynamics of the area occupied by CK5⁺ epithelioreticular cells in the thymus of rats under normal conditions and after prenatal dexamethasone administration.

Materials and methods: the study was conducted on 144 white rats on days 1, 2, 3, 5, 9, 14, 21, and 30 after birth. They were divided into three groups of 48 rats in each: group 1 - intact animals, group 2 - experimental group receiving in utero administration of 0.05 ml of a 0.4% dexamethasone solution diluted 1:40, and group 3-control group receiving 0.05 ml of 0.9% NaCl. The area of CK5⁺ cells was calculated using Image J software.

Results and discussion: no significant differences ($p < 0.05$) were found between intact and control groups. On days 1-2 after birth, in all groups, the area occupied by CK5⁺ epithelioreticular cells was maximal. From day 3 onward, there was a tendency to area decrease in all groups.

Moreover, in the experimental group, the area occupied by CK5⁺ epithelial cells was significantly lower during the first month of postnatal life: by 1/3 in the first 2 days after birth; 2 times lower from day 3 to day 9; and 2/3 lower from day 14

compared to the control groups.

Conclusions: throughout the observation period, there is a significant and consistent decrease in the number of epithelioreticular cells in the thymus of animals in the experimental group. Since thymic epithelial cells mediate the effects of glucocorticoid hormones on immune cells, prenatal dexamethasone administration leads to disruptions in the formation of an adequate microenvironment for lymphocytes and, consequently, affects the fetal immune system.