

**REACTION OF LYMPHOID TISSUE IN THE WALL OF THE DUODENUM AND LYMPHOID  
PLAQUE IN RATS IN MODELING HYPOKINESIA***Salomov Shokhabbos Nozimjon ugli**Student of Andijan State Medical Institute, Uzbekistan***ABOUT ARTICLE**

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**Abstract:** The damaging effect of hypokinesia on the functional state of lymphoid tissue in the wall of the duodenum and on the lymphoid plaque was established. It was found that the processes of cell destruction, suppression of the plasma reaction and blast transformation of cells are most pronounced in the wall of the duodenum. In the lymphoid plaque, along with a high level of destructive processes in lymphoid cells, lymphocytopoiesis is preserved in the centers of proliferation of lymphoid nodules and the proportion of plasma cells increases in the internodal zone, which indicates the development of compensatory processes under the long-term influence of hypokinesia.

**INTRODUCTION**

In modern society, hypokinesia has become the main problem associated with a sharp decrease in human motor activity [1]. Hypokinesia also occupies a special place in conditions of weightlessness during space flight [2]. It is known that the effect of hypokinesia, including in conditions of weightlessness, leads to a redistribution of blood and a change in the pressure of fluids in the body [3]. At the same time, a decrease in the weight load on the supporting structures, on the muscular system and a change in the regulation of the neuroendocrine system are noted [4]. A complex of such disorders is accompanied by a change in all physiological functions in the body [2]. At the same time, the reaction of the immunogenesis organs of the animal organism under conditions of hypokinesia has been least studied. At the same time, it is known that it is the state of the immune system that characterizes and ensures the stable functioning of the body under the influence of various external factors [3].

Information on the influence of hypokinesia on the state of the organs of immunogenesis is isolated and does not reveal the full scope of the issue [4].

## **MATERIALS AND METHODS**

Results of the study. Sections of the duodenum and lymphoid plaques isolated in the wall of the ileum were fixed in 10% neutral formalin solution and embedded in paraffin. Histological sections of the organ 4-5  $\mu\text{m}$  thick were stained with hematoxylin and eosin, according to the methods of Mallory and van Gieson. All cells found in the lymphoid tissue in the wall of the duodenum - in the intestinal villi, between the intestinal crypts and in the proper plate of the mucous membrane - were taken into account. In the lymphoid plaque, cytoarchitecture was analyzed in the centers of proliferation of lymphoid nodules, which are the zone of maturation and differentiation of B cells, which are an indicator of the state of humoral immunity, as well as in the internodal zone - the zone of accumulation and maturation of T cells regulating cellular immunity. Analysis of the cellular composition in the studied sections of the small intestine was performed on a standard histological section area of 880  $\mu\text{m}^2$  using the method of Stefanov S.B. [2]. Quantitative results of the cellular composition were processed statistically. The reliability of differences in mean values was assessed at  $p \leq 0.95$ .

## **RESULTS AND DISCUSSION**

In intact rats, the highest accumulation of lymphocytes was found in the wall of the duodenum between the intestinal crypts (48.7%) and an equal amount in the villus and in the proper plate of the mucous membrane (40.0% and 39.2%). Most of the plasma cells (31.2%) were noted at the border with the intestinal lumen, which is associated with an active antigenic effect at the points of contact with food masses. Between the crypts, these cells were found in minimal quantities (4.1%). Along with lymphoid cells, in the structural zones of the wall of the duodenum there are from 4.0% to 5.5% of cells in a state of destruction, as well as macrophages (from 1.8% to 2.6%). In addition to these cells, a significant proportion of eosinophils (11.0%) was found between the crypts and the least of these cells were found in the villus (1.6%).

In intact rats, the lymphoid (Peyer's) patch in the ileum wall consists of lymphoid nodules with wide proliferation centers separated by internodal zones. In the proliferation centers of lymphoid nodules, the main proportion of cells is made up of poorly differentiated cells (34.88%), among which large lymphocytes predominate and blasts are found in somewhat smaller numbers (19.95% and 14.93%, respectively). Cells with mitotic patterns are also present (4.27%), which, along with poorly differentiated cells, indicates an active level of lymphocytopoiesis and blast transformation of cells in

the proliferation centers of nodules in intact animals. In the studied structure of the lymphoid plaque, the content of lymphocytes (medium and small) is 1.6 times less than that of young cell forms. At the same time, plasma cells are present, mainly mature (antibody-producing) plasma cells (4.61%). In the centers of nodule proliferation, destructively altered and destroyed cells (12.48%) and half as many macrophages, constituting 6.30%, were detected.

## **CONCLUSION**

These data indicate that after the effect of hypokinesia, the lymphoid tissue of the duodenum is most vulnerable to this effect and is a kind of "target zone" where the damaging effect of its functional activity is most noticeable. However, in the lymphoid plaque, the most pronounced processes of suppression of functional activity affect the centers of reproduction of lymphoid nodules. In them, after the effect of hypokinesia, cells with mitosis patterns and young forms of cells are preserved, the content of which decreases sharply, which indicates a decrease in the activity of lymphocytopoiesis and leads to the suppression of the maturation of B-cells regulating humoral immunity. At the same time, in the internodal zone of the lymphoid plaque, the plasmatic reaction is enhanced and the influx and maturation of poorly differentiated cells is preserved, which characterizes the compensatory maintenance of humoral and cellular immunity in the organ. It has been established that under the influence of hypokinesia, the lymphoid (immune) tissue in the walls of the small intestine undergoes changes that characterize the depletion of its functional activity, which indicates a decrease in the protective immunological barrier both in the walls of the organ and in the body as a whole. Considering the systemic nature of the reaction of the lymphatic system of the body, one can assume the functional insufficiency of all organs of immunogenesis and the possibility of developing an immunodeficiency state in rats after exposure to hypokinesia.

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