COMPARATIVE IMMORPHOLOGICAL INDICATORS OF THE THYMUS OF WHITE RATS IN FE DEFICIENCY.

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Annotation As a result of histological analysis of the lymphoid structures of the thymus in white outbred rats with alimentary iron deficiency, a violation of parenchymal-stromal balance in the organ, a decrease in the morphometric parameters of lymphoid tissue, the number of lymphoid cells, and the level of expression of immunohistochemical markers were revealed. In immunohistochemical studies, a significant decrease in the expression of markers CD3, Ki-67, and Bcl-2 was noted, which means that iron deficiency negatively affects the proliferation, differentiation, and immunocompetence of T-lymphocytes.

Keywords: iron deficiency, thymus, white rat, lymphopoiesis, T-lymphocytes, immune system.

Actuality. The lack of micronutrients in the human body resistant to the suppression of unfavorable environmental factors of the body, going beyond the limit of the formation of an immune deficiency state, the activity of the antioxidant defense system of the disorder, the development of the form of chronic diseases, increase the risk of developing common diseases, quality of life and effective treatment measures will lead to a decline. The lack of important micronutrients leads to a violation of the metabolic process, reduces the body's resistance to infections and various other pathogenic factors [2].Iron (fe) is an essential element for all living cells, because in many metabolic processes, including transkripsiya of dna and synthesis, is involved in the transportation of oxygen [5].

In turn, the immune reaction of the body in proportion to maintain the optimum balance of micronutrients and provides protection from viral infections. For this reason it is vital, especially zinc, selenium, iron, magnesium shortage bioelementlarning member and like many pathological process that will create the system to the ground in the night[6].

To maintain the health of the human immune system plays an important role. Thymus is a member of the central immunogenezning. It not only at, but also by the members is also immune peripheral t-lymphocytes and tabaqalanisnini provides the immune reaction at the same time for the implementation of administrative and t-

lymphocyte populations and encourages the integration of various makrofaglar [1, 3, 4].

The research object as 6 and 9 months of age in the period viva simple conditions smentallyganseed without white 80 units in male ratsled to the use of n.

Material and methods. Research was conducted in male rats than 80 without white seed. The rules of ethics on the use of animals in experimentation, Xelsinki the requirements of the congress will follow. Rats were kept in viva simple conditions. Experience in the laboratory of the animal's age, sex, weight, nutrition were kept correspond to the conditions in the environment. Tim morfofunktsinal two indicators to determine the structure of a group of animals was established. I group - normative (n=40); group ii – magnesium diet reached given white rats (n=40). For modeling a shortage of micronutrients German “Spezialfutter ALTROMIN gmbh & co. KG” prepared by the firm led to the use of a special feed. Special series no. feed 36/2024 have been provided with an official certificate. Rats in the control group to 2 sticks per day were given the usual feed. Without special body weight in feed per day due to the experience of the group 2 sticks of 20 g were used.

The results of the survey. Paired with one of laboratory animals of the thymus in the control group consists of two pieces, if you make it a part of to'sh in the lower third of the bone is located. 6 and 9 month healthy white seed capsule of the thymus of rats, respectively, the thickness of the gate without the field 5,82±0,32 and 5,97±mkm was of 0.38. The diameter of the proximal part Trabekulaning respectively 13,36±0,27 and 13,52±0,22 mkm, in the distal portion 10,28±0,14 and 10,43±0,22 determines that it is equal to mkm. Thymus area corresponding to the period of the age of the piece without 64,27±0,12% and 52,27 ± 0,48% accounted for.

Iron deficiencywithout the thymus of rats in the group I am modeling the breed stained white capsule white rats in the control group, the thickness of the gate of the field in the period 6 months in comparison with the young 1,05 times, 9 month period in young 1,06 timesincreased. The diameter of both the proximal and distal part of the age of trabekulaning due to the period without 3,9% and 4,7% to increased lekarzemqlanga. The 6 month period piece of the area of the thymus in young 1,04 times, 9 month period in young 1,06 times decreased and 6, respectively,1,89±0,52%, and 49,53 ±0,63% are accounted for.

Healthy white seed kernels and thymus of rats of the portion of the tissue without histological prepretlarida po'sloq is the difference of the floor. Po'sloq kernels of the border between the exact expression and the floor was not. Parenximasi will identify the piece was replaced by fat tissue. The bark of the thymus in the control group 6 and 9 respectively of the floor area of laboratory animals monthly 63,86±0,37% and 58,83±0,26%, respectively, of the floor area 28,52 kernels±of 0.38% and 32,92±0,42 % accounted for.

Bark – the age of the index during the period of both kernels without becoming 2,24±0,16%, and 1,78±0,36% lekarzem is equal toqlanga. The thickness of the bark layer of the monthly period in young 248,27 6±11,54 mkm, in the period of 9 months young 165,27±9,76 was to mkm.

Iron shortage I am modeling the thymus of rats in the group without the bark of the white breed of white rats in comparison with the floor area intakt 6-month age period of 4.2 %, 9 month age period 5,8% respectively. The floor area during the period of the age of both kernels without becoming 1,03 and 1,05 timessince lekarzem is reduced toqlanga. Bark – kernels is reduced during the period of the index and the corresponding 2,2 without both the age of3±0.1to 1% was 1.7 and7±0.1to 8% and accounted for. Healthy white kalamshlar indicators in comparison with the thickness of the floor of the bark, 6 and 9 month age periodsida fit without 1,05 times is reduced.

Healthy 6-month age period of laboratory animals of the thymus t-lymphocytes analyzed by a particular type when the amount of the floor of the bark in the field of small lymphocytes subkapsulyar 38,42±0,58%, 64,78 area kortiral+0,44%, kernels on the floor 34,28± 0,17% accounted for. The average amount of lymphocytes in the field of the floor of the bark subkapsulyar 17,58±0,26%, kortiral area 16,37±0,22%, kernels on the floor 31,26±0,18% is equal to. The amount of the floor of the bark in the field of large lymphocytes subkapsulyar 17,64±0,28%, kortiral area 6,32±0,12%, kernels on the floor 4,26±0,10% accounted for.

9 month age period, the thymus of rats in the control group without the bark of the white breed of small lymphocytes in the field of the amount of the floor subkapsulyar 33,46±by 0.41%, kortiral area 52,92+0,36%, kernels on the floor 26,12± 0,14% accounted for. The average amount of lymphocytes in the field of the floor of the bark subkapsulyar 12,73±0,18%, kortiral area 11,94±0,16%, kernels on the floor - 32,27±0,22% is equal to. The amount of the floor of the bark in the field of large lymphocytes subkapsulyar 12,68±0,14%, kortiral area 4,26± 0,10%, kernels on the floor 3,19±0,16% accounted for.

Iron deficiency is the call to fail and keepthe gan seed corresponding to the components of the thymus of rats in group 6 month without white holda small amount of lymphocytes 4,0%, 5,% 0, 4,0%, and medium lymphocytes and the amount of 2,0%, 2,1and% 4,1%, and large lymphocytes in the amount of 4,0%, 1,3% and 1,with 0% respectively. 9 seed the thymus of rats in the experimental group corresponding to the components of the monthly white without case, a small amount of lymphocytes, 5,1%, 6,1%, and 5,0%, and the amount of lymphocytes in medium 3,0%, 3,1% and 4,2%, and large lymphocytes in the amount of 5,0% , respectively, 1,0% to determine the reduction.

Analysis of thymus cell reactions immunohistokimyoviy gave me the opportunity to determine the content of the piece, and the bark-t lymphocyte marker cd3 in the field of representing kernels showed a positive reaction to give. The white

bark and seed kernels of the thymus of rats for 6 months without the amount of CD3 positive cells in the floor fit without 45,68±1,36% and 27,83±0,62%, in the period of 9 months in laboratory animals yosin fit without 35,46±1,08% and 24,27±0,36% accounted for.

Healthy white cells that seed the thymus of rats without drug, representing the ki-67 was given special treatment with antitelo markyorini for the sake of determining and many many proliferatsiya will identify the cells. 6 monthly period without the share of these cells in rats breed yosin the white bark on the floor 36,12±1,02%, kernels on the floor 12,74±0,68%, in the period of 9 months in laboratory animals yosin fit without 25,92±is 0.74% and 7,09±0,48 % is equal to.

Anti-apoptotik protein - cml bc-2 in the parts and pieces of bark to the positive reaction you will ma'n member, as well as kortikomedulyar observed in the cell area, and 6 and 9 months of age, respectively, in period 8,16±0,16% and 10,94±0,18% respectively.

Age 6 month period will breed called white iron shortage kalamuslarda markyorining without express cd3 components corresponding to the level of the thymus 5,0% and 4,1%, in comparison with the case of a 9 month age period corresponding to 6.1 and 5,0% decreased by. Ki-67 level corresponding to 6-month age period and the reconstruction without the express markyorini-2.0 by 3.8%, corresponding to 9 month age period and without 5,0 3,0% be reduced by detected (fig.3). Anti-apoptotik protein - cml bc-the period of the level corresponding to the age of 2 without express 2,0% and manuals of 3.1% and decreased by.

Conclusion. The study found that iron deficiency has a significant negative effect on the thymus of white outbred rats. With iron deficiency, the thymus capsule thickens, the diameter of the trabecula increases, the area of the organ lobules, the thickness of the cortex, and the corticospinal index decrease in all age periods. A decrease in the proportion of small, medium, and large forms of T-lymphocytes, as well as CD3 marker-positive cells, indicates a slowdown in the maturation of T-lymphocytes against the background of iron deficiency. A significant decrease in the number of Ki-67 positive cells, representing lymphocyte proliferation, indicates a decrease in regenerative activity, and low expression of the anti-apoptotic protein Bcl-2 indicates an increase in apoptosis processes in the thymus. This indicates a decrease in the functional activity of the thymus in iron deficiency..

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