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PHYSICAL LOADING EFFECT OF BLOOD COMPONENTS DYNAMIC CHANGES IN HYPOXIANAL BABY RABBITS IN THE PREFETUS PERIOD OF PRENATAL ONTOGENESIS

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Abstract. Our purpose is to investigate the changes in blood morphological indicators in 30-days baby rabbits borned from the mothers held hipoxia during prenatal development. These baby rabbits have been influenced short-term and long-term physical load in the 30-th day. We have investigated normal baby rabbits and baby rabbits which has been grown during prefetus period of prenatal development. According to the experimental results we can note that, the result of control animals experiment comparing with the indicators experimental animals significant changes is observed. Mothers recieved 10 days and 20 minutes hypoxia every day in prefetus period. We observed the blood reduction and rising appeared in some indicators of blood componenets of 30-days baby rabbits (table and chart).

So, we gained this result that blood indication level depends on the condition nervous system. Noticeable changes are appering disorder in the neuro-endocrine regulation of blood system in the result of prenatal hypoxia. It depending on the level of muscle activity of rabbits recieved hypoxia and physical load.

Keywords: physical load, prenatal, hypoxia, postnatal, prefetus, blood.

1. Introduction

Learning changes in the stable situations of human and animal organizm regulating them, central and local sensor, neuro-endocrine, enzymatic and hormonal system during prenatal and postnatal hypoxia is one of the actual problems of physiology and its medical aspects. Prenatal and postnatal hypoxia creates pathalogical changes in brain, neuro humoral regulation mechanizm, defense-adaptation reactions [1, 4, 6, 7, 8].

Generally, in all animals hypoxia in the prenatal development may influence to the physiological systems in postnatal period [2, 3, 5].

Research work in the following series was conducted on

First series – blood components change dynamics investigation of 30-days intact baby rabbits developed in normal conditions;

Second series – short time physical load to blood components change dynamics investigation of 30-days intact baby rabbits developed in normal conditions;

Third series – long time physical load to blood components change dynamics investigation of 30-days intact baby rabbits developed in normal conditions;

Fourth series – blood components change dynamics investigation of 30-days baby rabbits development spending prefetus period of prenatal development in hypioxianal condition;

Fifth series – short time physical load to blood components change dynamics investigation of 30-days baby rabbits development spending prefetus period of prenatal development in hypioxianal condition;

Sixth series – long time physical load to blood components change dynamics investigation of 30-days baby rabbits development spending prefetus period of prenatal development in hypioxianal condition.

The gained results are shown in table and chart.

2. The research material and methods

Trails are carried out on the rabbit pups, of the "Shinshilla" species. (Oroktoloques Suniculus) Animals are divided into two groups: control və exprement. Control group animals as experimental animals kept in conditions of ordinary vivarium regularly kept in cells with normal pressure and weather conditions and the conditions of ventilation was adapted. In experimental group in prefetus period of prenatal development pregrant rabbits suffer hypoxia 20 minutes in a day during 10 days in pressure chamber with ventilation.

Hypoxia was carried out in pressure chamber 0,12 m² by Khvatova. For that pregnant rabbits suffered hypoxia in10-20 days, in prefetus period in the same time every day. So, rabbits got beeing 93% N_2, 7% O_2 in the composition of mixture gazes. During investigation the influence of hypoxia to the behavior of rabbits is also been observed. During the study period, hypoxia conditions specified in the later stages of the rabbits had normal vivari conditions.

To apply the physical burden of the beasts of the animal is placed in a hollow drum-type mechanical device, and then the drum circumference is moving of 40-45, with the experiments, 5 minutes (short-term physical load) during other experiments, 20 minutes (long-term physical load). For analyse blood is taken from the ear vein and leukocytes, lymphocytes, monocytes and granulocytes to the dynamics of change was appointed. General blood tests were carried out on in apparat with 21 parameters Mytic18. The results obtained are summarized in the Table 1.

3. Inverstigation result and their discussion

From the information given in table 1, charte 1,2,3 it seems that, until hypoxia and physical load in control group morphological indicators of blood are as follows. Leukocytes 5.18 thousand±0.18, lymphocytes 46.19%±1.28, monocytes 14.30%±0.80, granulocytes 39.60%±1.40, (p›0.5-0.001) and differ each other in the control. In the control rabbits indicators became as follows after short-term physical load leukocytes 2.58thousand±0.28, lymphocytes 29.40%±2.18, monocytes 18.72%±1.76, granulocytes 38.60%±4.93. After long-term physical load indicators became: leukocytes 3.11 thousand±0.25, lymphocytes 59.14%±1.29, monocytes 17.73%±1.14, granulocytes 23.70%±0.84.

Statistical exponent after short and long term physical load has changed between p=0.5-0.001.

Amount of leukocytes is 8.60 thousand ±0.35, lymphocytes 57.95%±2.02, monocytes 14.83%±0.98, granulocytes 28.93%±1.73 in 30-day baby rabbits which borned of mothers suffered hypoxia in the prefetus period. These changes are as follows after short-term physical burden. Quantity of leukocytes is 4.92 thousand±0.28, lymphocytes 68.25%±2.79, monocytes 16.04%±0.54, granulocytes 13.37%±0.29. After long-term physical load leukocytes were 4.97 thousand±0.40, lymphocytes 76.13%±1.48, monocytes 12.25%±0.49, granulocytes 18.63%±1.97.

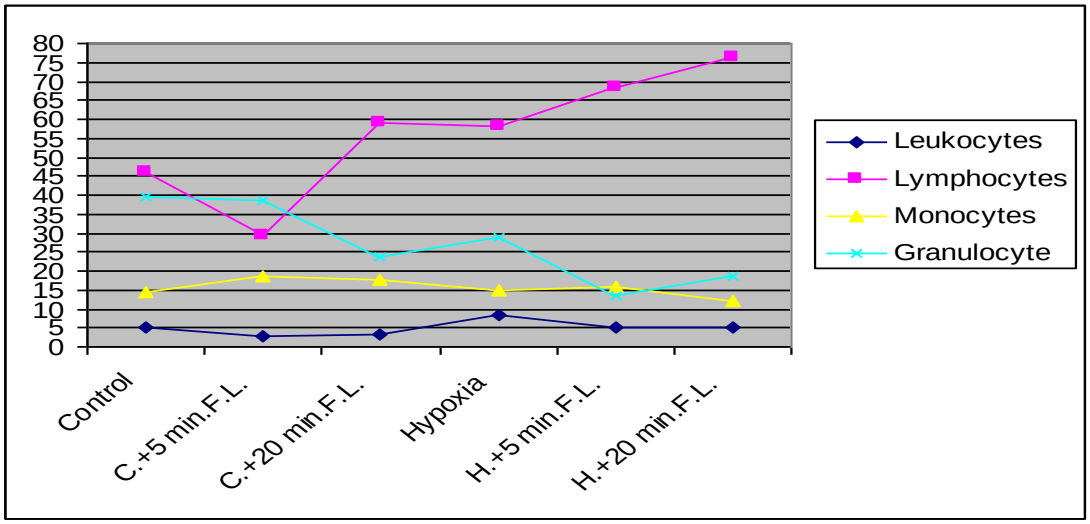
Physical loading effect of blood components dynamic changes in hypoxianal rabbits puppy in the prefetus period of prenatal ontogenesis

Table 1

Defined indicators	Expremental situation					
	Control	Control		Prefetus period		
		Physical load		Hypoxia	Physical load+hypoxia	
		5 min.	20 min.		5 min.	20 min.
Leukocytes	5.18±0.17	2.57±0.28	3.11±0.25	8.60±0.35	4.92±0.98	4.97±0.40
P	-	-	-	-	-	-
Lymphocytes	46.19±1.23	29.40±2.18	59.14±1.29	57.95±2.02	68.35±2.29	76.13±1.48
P	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Monocytes	14.3±0.80	18.72±1.76	17.73±1.14	14.83±0.99	16.04±1.14	12.25±0.49
P	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001
Granulocytes	39.6±1.4	38.57±4.93	23.7±0.84	28.93±1.73	13.37±0.29	18.63±1.97
P	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Physical loading effect of blood components dynamic changes in hypoxianal baby rabbits in the prefetus period of prenatal ontogenesis

chart



4. Results

It was determined that the 30-day rabbit babies born to mothers who had prenatal hypoxia reduction in performance caused by the rise in short and long term effects of physical load of tissues and cells in the blood system and the regulation of metabolism and the body's defense system formed neuro-endocrine disorders. Based on the foregoing, almost as stressor factor hypoxia and physical load causes disorder in blood system. Thus hypoxia is caused by disorders in the body's antioxidant defense system. So, according to the gaind results, we may note that different result is gained after short and long-term physical load morphological indicators of peripheral blood of 30 days baby rabbits borned by hypoxional mothers during prefetus period of the prenatal development

In the results comparative analysis can be noted that in control group comparison with prefetus period babies rabbits suffered hypoxia are more bearable and more effective changes are observed in blood components level in prefetus period. So as a powerful stressor factor hypoxia causes to andernaline disorder during short-term physical load, but long-term physical load causes dissorders of excreting of qlikokortikoid to the blood. This causes metabolic disorders of the epitalamo-hypothalamus-hypophizar-adrenal gland in blood system and consequently hypoxia causes disorders of blood morphological indicators in neuro-endocrine regulation.

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