

group of 116 women for comparison has daughters with physiological flowing of pubescence period.

The age of first menstruation and a character of the beginning of the women's menstrual function in the comparative groups aren't greatly different.

Real difference in the clinic demonstration of diseases of ears, noses, throats organs 57(49,1%) the daughters have their broken menstrual function and 14(12,1%) cases with of it, renals 24(20,7%) in the main mothers' groups and 5(4,3%) in the comparative group was revealed.

Somatic mothers' diseases serve not only as negative background for bearing their daughters with following problems in their beginning of the reproduction, but their early menses testifies to considerable lowering of general organism adaptive possibilities.

Diseases of endocrine (glands) 77(66,4%) and 31(26,7%), heart-vascular ones (59(50,9%) and 38(32,8%), ears, noses and throats 38(32,8%) and 15(12,9%), alimentary canal ones 39(33,6%) and 16(13,8%) as well were lighted among the mothers who have daughters with broken menstrual function after their mother's birthing and before the age of 40 (reproductive period) really oftener than among mothers who have daughters without such diseases.

Frequency of exposing of somatic diseases didn't have authentic differences among women after 40 in the comparative groups. Although heavy climacteric syndrome 12(10,3%) and malignant tumours of a reproductive in the main women's group after 40.

Thus presence of their mother's somatic diseases in their pregnant and their authenticity earlier clinic demonstration in their reproductive age influences on the reproductive girl's health negatively as the lowering display of their general adapted organism abilities.

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IMMUNE STATUS OF HORSES AT CHRONIC STRONGYLOIDOSIS

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Strongyloidosis of horses refers to the class of helminthiases, which are caused by parasitizing intestinal worms Nematode of the superfamily Rhabditoidea, genus Strongyloides, species Strongyloides westeri.

The disease's agents parasitize in the small bowel, and though they are little pathogenic, under certain circumstances they can cause a nasty enteritis.

Strongyloidosis represents a unique genus: helminths are able both to parasitize in an animal's body and to be free to propagate out of an organism. Only ambosexous females, which strike their eggs containing larvae by parthenogenesis (i.e. the development occurs from infertile egg cells), parasitize in the small bowel. After getting rid of the eggshells the larvae go through 4 phases developing into free-living males and females, and then helminths can propagate in the ambient medium.

The vermination can occur when ingesting - alimentarily, or through skin - percutaneously, free-living 3rd stage larvae, which then migrate through low tension circulation, lungs, breathing tube to the small bowel, where they develop into full-grown females.

Though there are lots of reasons for the helminthism to appear and they are all interconnected, one of the most important ones is the immune status change of animals, as it is stated that animals become more responsive to helminthisms at the immunity weakening (G.M. Urkkhart and co-authors, 2000).

That is why the aim of our work is to define the immune status of horses at chronic strongyloidosis on the basis of studying of the value of humoral immunity indexes in blood serum.

The research was carried out in the cavalry school "Squadron", Sovetsky, Khanty-Mansi Autonomous Area, Tumen Region. In the

experiment horses aged 3 years were used, two experimental groups being formed. The first group was the control one and consisted of clinically healthy animals. The second group was an experimental one, there were horses that were diagnosed to suffer from chronic strongyloidosis on the basis of clinical signs (parasitic enteritis) and the results of scatology by Fuelleborn-and-Berman-Orlov method, the occurrence of eggs and larvae of helminths in the fecal masses being proved.

The material of the research was fasting blood taken from the jugular vein in the morning and motionless. In the blood serum the value of immunoglobulins of A-, M-, and G-classes was defined by the single radial immune-diffusion method with the use of monospecific antisera, the concentration of circulating immune complexes (CIC) - by the spectrophotometric method, blood serum lysozyme activity - on the selective lytic lysozyme activity concerning the

sensitive culture *Micrococcus lisdordercticus*, the bacterial growth-inhibitory activity - according the method of Smirnova O.V. (1996) were measured. The research results are shown in the table.

The host immunity limits the contamination level changing the development of new invasions or stopping their development completely or on larval phase, while the existing invasion with full-grown helminths either is extruded or their egg producing decreases considerably (G.M. Urkkhart and co-authors, 2000).

As it is seen from the tables 1 and 2, chronic invasion is accompanied with dyscrasia of humoral component of immune system. It is the after-effect of helminths' allergenic influence on the host's body and the interaction result of the system "antigen-antibody", helminths themselves and larvae migrants and their waste products playing the role of antigens.

Table 1. The immunoglobulin value in the horses' blood serum, n=10 ($Sx \pm x$), * - $P \leq 0,001$

Animal groups	Immunoglobulin classes, g/l		
	Ig G	Ig M	Ig A
Control	16,51±0,53	2,29±0,11	1,86±0,06
Experimental	22,30±0,65*	2,39±0,13	1,03±0,10*

The analysis of the results of the study of immunoglobulin value in blood serum of the horses at chronic invasion showed that the quantity of IgG increases by 34-37%.

70-80% of the total immunoglobulin value in blood serum is allotted on IgG. They play the main and foundational role in humoral immunity at antigenic loading causing the pathogenic agent's death with a compliment factor and opsoning the phagocytal cells; are able to neutralize bacterial exotoxins, to bind compliment and to react precipitation.

IgG increasing testifies the adaptive humoral immune reaction of a body to the helminthism invasion and is connected with the influence of nematodes' antigens, their waste products, their self-tissue and the following-up bacterial population destruction. The IgG level increase may also be associated with the fact that the mucus membrane with hyperpermeability allows anthelmintic immunoglobulin G to "go out" of plasma into bowel lumen and to have an access to parasites.

We haven't established authentic IgM level change at chronic horse strongyloidosis. It is known that immunoglobulins of the class M are "the earliest" of all immunoglobulin classes. They are able to agglutinate bacteria, neutralize viruses, activate compliment.

The data got by us testify a greater probability that IgM-antibodies don't participate in chronic invasion pathogenesis.

We have established that chronic strongyloidosis of horses is accompanied with an authentic decrease of the IgA level by 40-45%.

Immunoglobulin A is a secretory immunoglobulin. It refers to the main immunoglobulin class which is concerned with local immunity, prevents bacteria from attaching to the mucus membrane, neutralizes enterotoxins, activates phagocytosis and compliment. The IgA concentration decrease allows assuming the existence of suppressive mechanisms at chronic invasion, which can underlie the synthesis inhibition of immunoglobulins of the given class.

Besides, it has been established that in the acute period of nematodosis of gastrointestinal tract at heavy beasts and sheep the adaptive immunity to helminthisms is formed. The immune response is a complex one, and is based on the antigenic stimulation with secretory or excretory products egested during the development of a 3rd stage larva into a full-grown species. For example, the experimental research showed that mature sheep possessing the immunity to *Ostertagia* can ingest up to 50000 3rd stage larvae daily without any clinical signs of parasitic gastritis. There are also the data that the secretion of anthelmintic immunoglobulin A on the mucus membrane surface promotes the functional blennogenous cell's activity increase.

Therefore, the IgA concentration breakdown promotes (at reinvasion of horses with nematodes' larvae) larvae's migration, their development into full-grown species, their

fertility increase and, as the consequence, helminths' disease-evoking power's increase. It leads to the fact that helminthism occurs with pronounced clinical signs.

We have established that the horse body responds to the entry of nonshared antigens with the synthesis of proteins possessing specific affinity to the antigen which causes this synthesis. This conditions the appearing in the blood circulating immune complexes (CIC), the concentration of which is one of the criteria of functional competence of the humoral component of the immune system of animals (Isayev A.G., 2001). The CIC level at chronic invasion increases more than by 30%, that can be the consequence of non-sufficient rate of utilization by the elimination of the given complexes against the background of the increased antigenic loading to a body.

Table 2. The humoral immunity indexes, n=10 ($Sx \pm x$), * - $P \leq 0,05$; ** - $P \leq 0,01$

Indexes	Control group	Experimental group
Circulating immune complexes, %	25,85±0,66	31,15±1,63*
Blood serum bactericidal activity, %	66,88±2,47	80,09±2,57**
Blood serum lysozyme activity, %	27,37±1,23	34,50±0,84**

One of humoral resistance factors is the lysozyme enzyme, the place of synthesis of which macrophages, from where it enters blood and then leucocytes (granulocytes), serve. The biological meaning of lysozyme is founded on its antibacterial properties. In our research we have established the authentic increase of lysozyme and bactericidal blood serum activity, that testifies the state tension of natural defensive mechanisms of horses and their and agent interplay level, i.e. the stimulation of the phagocytosis process during chronic invasion.

So, we have established that the immune status of horses at chronic strongyloidosis is characterized by IgG level increase and IgA concentration decrease. The specific redistribution of main immunoglobulin classes in blood serum of animals,

probably, creates favorable conditions for larvae's migration in the host body after the vermination, the development of the 3rd stage larvae into a full-grown species, nobileous female fertility increase and their disease evoking power increase. That is why chronic invasion occurs with pronounced clinical signs in the image of parasitic enteritis. Alongside with local disorders conditioned by helminths parasitizing in animals' bowels the CIC concentration, bactericidal and lysozyme activity increase occur. It means that nobileous helminths, larvae migrants, their waste products and secretory and excretory products egested during the development of a 3rd stage larva into a full-grown species appear as antigenic stimulator for a horse body.

The data got allow us to make the conclusion that helminthic invasion is not a separately taken pathology, but represents a difficult system complex appearing as the result of host body affect with helminths and is accompanied with animals' immune status changes. That is why it is necessary to include the preparations decreasing the sensibilizing action of helminthic invasion on the host body and increasing the synthesis of immunoglobulin of class A into helminthism treatment schemes additionally alongside with anthelmintic agents.

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GENERAL ADAPTATION REACTION OF ERYTHROCYTIC BLOOD POPULATION OF BIRDS AT PHOTODESYNCHRONOSE

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The erythrocytic membrane penetration (EMP) and sorption capacity (ESC) are the objective characteristics for the estimation of structural and functional state of the membrane apparatus of a body as a whole, considering a high correlation of property changes of blood cells' membranes and internals at extreme exposures of different intensity. The aim of the research is to study birds' EMP and ESC states when adapting to photodesynchronose.

The work was carried out on 15 cockerels of "Isa Brown" cross. Photodesynchronose was created by a photo-modeling method according to 3-days inversion of light exposure in the light status of photoperiod 12:12 (from 8 a.m. till 8 p.m. – a night imitation, from 8 p.m. till 8 a.m. – a day imitation) with the following birds' change-over on natural light status. The blood was taken on 1,3,7,15,23 and 29th day after chronophysiological loading. EMP was evaluated on the urea intensity to penetrate through cell membranes; ESC – on membrane sorption of methylene blue;

plasmatic (ectoglobular) hemoglobin (PH), blood glucose level, osmotic fragility and acid

fastness of erythrocytes – by means of traditional in clinical and veterinarian hematology methods.

In the background survey the average percentage of erythrolysis (APE) and the average percentage of hemolysis in the area of urea concentration 55:45 and 60:40 were accordingly $4,06 \pm 1,68$ and $4,10 \pm 2,39$. On the first and third days of rehabilitation period EMP was highly increased – APE was 4,9 and 6,5 fold higher the control level accordingly. Simultaneous ESC decrease we consider as a tendency. The PE increase – up to $1,99 \pm 0,35$ and $1,26 \pm 0,19$ g/l⁻¹ (in the control $0,68 \pm 0,13$ g/l⁻¹, $p < 0,01$) – witnesses the damageability of membraness. Hemoglobin breakdown products, being a powerful prooxidant, initiate lipid peroxidation (LPO) and, causing membrane ruptures, provoke EMP increase. Erythrocytic membrane structures' destabilization leads to their functional inadequacy and hypoxia. The glucose concentration in blood decreases up to $7,40 \pm 0,15$ and $6,88 \pm 0,08$ mmol/l⁻¹ ($p < 0,001$). On the seventh day a hyperglycemic rising ($9,88 \pm 0,28$ mmol/l⁻¹) is marked, EMP and PE are higher the control level, and the sorption capacity is lower by 17,5 % ($p < 0,01$). In two weeks the glucose concentration in blood is $11,27 \pm 0,47$ mmol/l⁻¹ and the APE and PE tend to decrease; on the 23, 29 days the studied parameters approach the background ones. The evolution of regenerative processes in erythrocytic population is reflected in the differential acid erythrograms. On the first week of the stress aftereffect the functional erythron activity increases, the population of old cells with decreased resistance grows, and a specific shift of red cell distribution resistance erythrogram to the left is marked, that witnesses the resistance decrease and erythrolysis intensification. The right wing rising and the hemolysis time increase up to 6 min on the 15 day of the adaptation period – is the sign of the population's rejuvenation. On the 23 day the right shifted erythrogram becomes tricrotic and stretched to 8-9 min; on the 29 day the acid resistance increases, the erythrogram profile approaches the background one, however, in the erythrocytic population the lot of cells with hidden structural membrane failures is still high – up to 84,7 % red cells hemolyzes in the critical resistance point (0,55 % NaCl) and up to 21,0 % - in the autohemolysis point (0,70 % NaCl). The stressor reaction and the