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HEMATOLOGICAL PARAMETERS OF INFESTED PIGS BU TRICHUROSIS

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Presenting hematological studies on pigs for trichurosic invasion. Proved pathogenic effect of worms on animals. Found that the intensity of infestation 148,8 ± 5,12 eggs of trichurises in 1 g of feces in pigs blood of patients recorded a significant decrease of hemoglobin and red blood count and increase the number of white blood cells

Pigs, blood, morphological and biochemical parameters, trihurosic invasion

Introduction. Pig breeding – agricultural sector, which now provides people around the world valuable food [10, 11]. Thanks to valuable economic characteristics of pigs industry is among the highest in the production of meat compared to other farm animals. No chance in countries with high levels of livestock industries (Denmark, Germany, Netherlands, Hungary) is pig industry takes priority meat production. However, with regard to our country, the level of performance of pigs in most regions of Ukraine is extremely low. Number of piglets from sows core averaged 14.2 head per year, and average daily calves for fattening do not exceed 300 g [6]. The reasons for this trend are many. This is poor feeding and welfare of animals, inefficient use of genetic material breach and clean rocks contagious and non-contagious disease [8, 12].

Message in domestic and foreign literature indicate that among the most prevalent diseases of pigs invasive assumed a gastrointestinal nematodoses, which include and trichurosis [7, 9].

Sows infected with worms, give birth to offspring weakened. In addition, they have reduced the number of newborn piglets. Considerable losses associated with growth retardation and weight loss patient young. Piglets infected with helminths, poorly fed and lose 20 to 60% of the daily rate. At the same time increase (from 25 to 100%) costs of feed units to increase body weight and feeding period extended for 2–2,5 months. In addition, invasive disease weakens the immune system and disrupt metabolism, leading to a number of complications and infections [2, 5].

The criterion pathogenic effect of parasites on animals are not only changing the live weight of the animal, but significant changes in blood parasite that feeds the affected organs and tissues. According to the researchers found that changes in animals by helminths occur within 1–2 hours after infection. In the early stages of worms invasion animal toxins and decomposition products of cells damaged by parasites leading to inevitable changes of morphological and biochemical composition of blood. Found that in piglets from the first days of defeat by askarises marked leukocytosis with a sharp increase in the number of eosinophils. Significant changes occur from the contents of total protein and its fractions, including ceruloplasmin, transferrin, there dysproteinemia, decreased albumin-globulin ratio. It is well known that worms secrete metabolic products of tissue destruction and substrates that are antigens. They sensitized host organism and cause allergies, accompanied by activation of the reticuloendothelial system of the body, stimulating the emergence of immunity [1, 3, 5].

In response to the above is relevant to study the dynamics of changes in hematological parameters pigs for trichurosic invasion.

The purpose of research. The aim of the work was to study the influence of for trichurosic invasion in patients with hematological indices pigs.

Material and methods of research. Research conducted during the autumn-winter 2014 breeding base pig farm «Nadia» Poltava region. Hematological studies performed in affected animals centralized certified laboratory of Poltava and scientific laboratory of Parasitology and Veterinary Examination Faculty of Veterinary Medicine of Poltava State Agrarian Academy.

For experiments used a large white breed pigs aged 2–4 months, spontaneously infested by trichurises with the intensity of infestation 148,8 ± 5,12 eggs in 1 g of feces.

For the experiment involved two groups of animals in 5 goals in each (a total of 10 goals). The first group was the control (healthy piglets), the

second - pigs spontaneously affected Trichuris suis. Blood samples were taken in the morning before of pigs feeding on ocular sinus.

In samples were: the number of white blood cells, red blood cells, platelets, hemoglobin, hematocrit value, the average content of hemoglobin - using the automatic hematology analyzer «MS 4" (France). Sample preparation and determination of performed according to the manual. Leykohramma determined smears of blood stained the method Romanovsky-Himza.

Statistical analysis of experimental results carried out by determining the arithmetic mean (M) and its error (m) and the level of probability (p) using the table Student t-test.

Results and discussion. The results of the study found that the body for trichurosis sick of pigs recorded changes of hematological parameters (Table 1).

Thus, in the blood of pigs infested by trichurises noted a significant decrease in the number of erythrocytes 45,4% (3,65±0,42 T/l, P<0,001 in terms of clinically healthy animals – 6,68±0,27 T/l), hemoglobin at 25,9% (81,2±5,09 g/l, P<0,01 performance in healthy – 109,6 ± 5,10 g/l), increasing the number of white blood cells to 30,6% (16,78±0,44 G/l, P<0,001 in terms of healthy – 11,65±0,92 g/l). These changes indicate the occurrence of progressive anemia and inflammation as a result of worms.

Indicators hematocrit, platelet count and hemoglobin in one erythrocyte were not significantly different in the blood of experimental and control pigs.

In leucogram infested animals have been insignificant changes were characterized by an increase in the number of eosinophils by 36 % (8,4±1,50 % in terms of clinically healthy pigs – 5,4±0,51 %), segmented neutrophils by 2,9 % (34,6±2,01 % in terms of healthy – 33,6±2,42 %), as well as a decrease in the number of lymphocytes and monocytes 4,8 and 8 %, respectively (47,4±3,25 and 49,8±3,15 % in terms of healthy pigs – 49,8±3,15 and 5±0,83 % respectively). At the same time decreased the number of mast cells by 67 % (0,2±0,2 % in terms of healthy pigs – 0,6±0,4 %).

So trichurosic invasion leads to changes in hematological parameters of patients with of pigs, characterized by the development of anemia and leukocytosis due to mechanical and toxic effects of helminths.

Conclusions and prospects for further development. Trichurosic invasion is accompanied by changes in hematological parameters of patients pigs. Parasitism of trichurises characterized by the development of anemia and inflammation in the body infested animals.

The prospect of future research is to study the pathological-anatomical and histological changes in the intestinal canal, liver and pancreas of pigs for for trichurosic invasion.

Table 1. **Hematological parameters of healthy and patients by trichurosis pigs (n=5)**

Indicators		Clinically healthy piglets	Piglets, which patients by trichurosis
Erythrocytes, T/l		6,68±0,27	3,65±0,42***
Leukocytes, G/l		11,65±0,92	16,78±0,44**
Hemoglobin, г/l		109,6±5,10	81,2±5,09**
Hematocrit, l/l		0,32±0,33	0,24±0,01
Thrombocytes, G/l		280,4±12,77	206,4±30,75
Hemoglobin in one erythrocyte		19,58±0,92	15,62±1,45
Leucogram, %			
Basophils		0,6±0,4	0,2±0,2
Eosinophils		5,4±0,51	8,4±1,50
Neutrophils	Young	0,6±0,4	0,4±0,4
	Band	5,2±0,86	4,4±0,87
	Segmentonuclear	33,6±2,42	34,6±2,01
Lymphocytes		49,8±3,15	47,4±3,25
Monocytes		5±0,83	4,6±0,51

Note: * – P <0,05; ** – P<0,01; *** – P<0,001 relative measure of clinically healthy piglets