

THE STUDY OF EFFECTIVENESS OF COCCIDIOSIS PROPHYLAXIS IN YOUNG RABBITS

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Coccidiosis (eimeriosis) is an animal disease that is widespread in the world and causes significant economic damage to the agriculture. Due to the technological features of keeping rabbits in cages, they are massively susceptible to this disease. Studies show, that the infection of rabbits with coccidiosis in different areas varies from 30 to 100 %. The death of infested young rabbits reaches 80-100 %. Sick animals lag behind in growth and lose from 12 to 30 % of their weight. Adult animals are less sensitive to coccidiosis, but they are carriers and sources of the eimeric infection [2, p. 46-47; 4]. Thus, the protection from coccidiosis is an important area of veterinary medicine. In connection with the rapid adaptation of the simplest *Eimeria* to the drugs used, it is necessary to constantly search for new treatment regimens and to replace them reasonably [5, p. 159-162; 6].

The aim of this research is to determine the time of occurrence of resistance of the coccidiosis causative agents to the acidifier “Kronocide-L” as well as to develop recommendations on prevention the reduction of treatment effectiveness.

Scientific novelty of the work – the relationship between the drugs used for the treatment of rearing females and underperformance of these drugs in the treatment of young animals was determined, as well as schemes and recommendations to prevent this phenomenon were developed.

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The research was carried out during 2018 on the basis of private sector in Zaporizhia Oblast. Five infested rearing females, which were treated for coccidiosis were selected for these studies. The youngsters of these females were kept separately from the other rabbits and were divided into two or three groups of ten animal units: two groups depending on the treatment regimen and one control group. The studies were conducted sequentially with two litters of youngsters with three months interval.

Acidifier “Kronocide-L” was chosen for the research as an environmentally safe cure for the prevention and treatment of coccidiosis in rabbits. Acidifier also improves digestion and inhibits the development of opportunistic pathogenic microflora. It is an additional source of phosphorus and microelements, and it increases animal productivity. After clinical manifestations of coccidiosis were noted – weight loss, indigestion and depression, and when the infection was laboratory-confirmed, the treatment of youngsters began. Clinical observations were carried out from 1 to 21 day of treatment. The level of eimeric infection was determined by means of scotscopy method, by counting the number of oocysts in the preparation according to [1, p. 428-429] before treatment and on 7, 14 and 21 day.

Treatment of young rabbits of the first group was carried out by “Kronocide-L” acidifier at a concentration of 0,10 l per ton of water, the second group – “Kronocide-L” acidifier at a concentration of 0,15 l per ton of water. The control group did not receive any treatment for coccidiosis until the end of the studies. Before the second and third connubium, females received a prophylactic course of acidifier “Kronocide-L” at a concentration of 0,15 l per ton of water. Youngsters didn't receive preventive treatment, the infection with eimeriosis was caused by the fecal-oral route, resulting from the high concentration of animals in cages and impossibility to ensure the absolute sterility of cages on the farm after infected animals were kept there.

Studies of feces of infested rabbits found *E. stiedae*, *E. perforans*, *E. Magna*, *E. media* oocysts.

The results of studies (prevalence P, extensive efficiency of the preparation EE and lethality for the period of treatment) are summarized in Table 1.

The results show that the extent efficiency of the acidifier in the first group of rabbits (that were given the same preparation as the rearing females) decreased from litter to litter. Extent efficiency of the preparation in the second group (with a concentration of 0,15 l per ton of water) remained practically at the same level. Prevalence in rabbits of the control group has not changed, the mortality amounted to 50-80% during the observation. With the appearance of clinical signs, a rapid decrease of albumin and total protein in blood serum has been noted in rabbits affected with eimeriosis.

The change in globulin index is proved by the level of thymol test which shows the amount of lipoproteins and beta- and gamma- globulins in the blood serum of infected animals. On the sixteenth day, the total bilirubin level increased four times in comparison with this indicator in healthy rabbits.

The results of the biochemical analysis of the blood of experimental rabbits are given in Table 2.

Table 1

Dynamics of eimeric infection in rabbits

The first litter									
Group	Number of rabbits	P, % Eimeria				EE, % preparation			Lethal outcome
		Day				Day			
		0	7	14	21	7	14	21	
1	10	100	89	16	3	11	84	97	0
2	10	100	91	15	2	9	85	98	1
Control group	10	100	95	102	97	-	-	-	7
Second litter									
Group	Number of rabbits	P, % Eimeria				EE, % preparation			Lethal outcome
		Day				Day			
		0	7	14	21	7	14	21	
1	10	100	84	21	9	16	79	91	1
2	10	100	89	15	4	11	85	96	0
Control group	10	100	103	98	97	-	-	-	5

Table 2

Changes in indicators of total protein, albumin, thymol test and bilirubin in blood serum of rabbits affected with eimeriosis

Indicators	Control (n=10)	Research			
		Day 3 day (n=30)	Day 6 (n=30)	Day 10 (n=30)	Day 16 (n=30)
Total protein, g / l	57,3 ± 1,15	66,9 ± 0,92 ³⁾	71,4 ± 0,99 ³⁾	70,0 ± 1,05	41,6 ± 0,81 ³⁾
Albumin, g / l	39,1 ± 0,72	33,6 ± 1,01 ²⁾	29,9 ± 1,52 ³⁾	24,5 ± 0,75 ³⁾	21,7 ± 0,67 ³⁾
Thymol test, pcs.	2,3 ± 0,12	3,3 ± 0,28 ²⁾	3,9 ± 0,31 ³⁾	3,7 ± 0,27 ²⁾	2,4 ± 0,27
Total bilirubin, μmol / l	7,4 ± 0,24	10,5 ± 1,19 ¹⁾	13,3 ± 1,32 ²⁾	18,9 ± 0,87 ³⁾	31,2 ± 0,63 ³⁾
Direct bilirubin, μmol / l	2,4 ± 0,15	4,2 ± 0,83	4,0 ± 0,56 ¹⁾	7,2 ± 0,38 ³⁾	14,7 ± 0,16 ³⁾
Indirect bilirubin μmol / l	5,1 ± 0,35	6,4 ± 0,42 ¹⁾	9,1 ± 0,81 ²⁾	11,5 ± 0,51 ³⁾	17,1 ± 0,66 ³⁾

Note: ¹⁾ - p < 0,05; ²⁾ - p < 0,01; ³⁾ - p < 0,001

As a result of hepatic ducts obstruction, obstructive jaundice occurs, the development of which is affected by an increase of the bilirubin level in the rabbits' blood. On the sixteenth day, the indicator of urea in the blood serum of infected rabbits continued to increase and was 6,5 times higher, comparing to the healthy rabbits. That provides evidence of hepatorenal syndrome and impaired renal

filtration [3]. Resistance of the simplest Eimeria to the acidifier “Kronocid-L” in a concentration of 0,10-0,15 l per ton of water occurred in young rabbits under investigation after the preparation was repeatedly used for prophylaxis.

Thus the use of acidifier “Kronocid-L” in a concentration of 0,5 liters per ton of water could be recommended for regular use on the farm, including preventive courses.

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