EFFECT OF COCCIDIOSTATES USED IN EXPERIMETAL EYMERIOSIS OF CHICKENS ON BLOOD MORPHOLOGICAL INDICATORS AND CERTAIN BIOCHEMICAL INDICATORS

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Abstract*: The effectiveness of the coccidiostatics amprovet 2.5%, toltrox 2.5%, and chimcoccidium-7 in experimental eimeriosis in chickens is discussed in the article, as well as their impact on the morphology and leukocyte composition of the blood and the concentration of retinol in the liver and serum.*

Keywords*. Chicken, conservation, live weight, eimeriosis, lethal dose, oocyst, immunity, invasive intensity, syringe, probe, blood, retinol, group.*

Introduction

Poultry items were primarily imported into our nation in the past, but now enough is raised locally by business owners. The system for producing chicken meat and eggs for our population's use, which are stocked on the shelves of our marketplaces, is growing.

Taking into account the enormous production of poultry eggs and meat and the low cost of raising meat products, poultry farming is one of the most significant segments of the livestock industry. In recent years, poultry has drawn more attention in our nation. The network has received a variety of benefits at the direct initiative of our government.

One of the most lucrative sectors with the ability to generate food with high biological content is poultry. In order to guarantee long-term food security, the growth of poultry is particularly crucial. One of the livestock industry's fastest-growing segments is poultry farming, which provides the populace with dietary meat and eggs.

The majority of hens that contract eimeriosis, an invasive disease in which oocysts proliferate in the intestinal mucosa and produce diarrhea, dehydration, and digestive issues, die. [8,10]

Because different diseases respond differently to the medications used to treat them, coccidiostats used to treat eimeriosis in various hens may not have the same impact.

Pathogens are expelled in the waste and spread to the surrounding area, where they can survive for several months under the right humidity and temperature conditions. They are treated with coccidiostats from several chemical families. [3, 4]

Eimeriosis, one of the most invasive diseases among chickens, is the most frequent cause of mortality during a time when they are prospering, and the rest lag behind in growth and development, inflicting serious economic harm to farms. [5, 7] It is crucial to test novel coccidiostats and introduce them to farms since pathogens are highly susceptible to the medications used to treat them. [2,9,11]

Method and materials

Laboratory experiments were conducted in a small vivarium of Samarkand state university of veterinary medicine, animal husbandry and biotechnology, and clinical trials were conducted at the department of "Animal physiology, biochemistry and pathological physiology". For the experiment, 100 "Loman LSL Klassik" chickens were brought from the "Akhalik lomann Parranda" chicken farm in Samarkand region and kept on a mat until the beginning of the experiment. At fourteen days, they were weighed on normal scales (difference in live weight ± 5 g) and formed into 5 groups, each with 20 heads.

The first was a comparatively clean control group, which was fed a diet until the end of the experiment.

The second comparatively untreated control group of chickens with the most virulent strains of Eimeriosis pathogens (E.asurvulina-250 thousand, E.maxima-10 thousand, and E.tenella-40 thousand in 1 mm^3 suspension) was first inoculated with sporulated oocysts (O'D_{50-90}) through a syringe probe to infect 1 mL of ewes and fed with drug-free food until the end of the experiment.

Chickens in the remaining 3-4 and 5 experimental groups were also infested with the same amount of Eimeriosis pathogens and were given amprovet 2.5% at 500 mg/kg for 5 days (group 3). toltrox was ingested with 2.5% 1 ml/l water for 2 days (group 4) and the experimental group 5 chickens were given 500 mg/kg of chimexacid-7 continuously for 5 days until the end of the experiment. Efficacy of the drugs used, the survival rate of chickens and the percentage increase in live weight per hen, the anti-Eimeriosis index (EQI), oocyte reproduction, morphological parameters of the blood, the amount of retinol in the liver and serum, pathological changes in internal organs and clinical disease. assessed according to the presence or absence of lomats.

The Eimeriosis Index (EQI) was determined using the improved method of D.V. Porter and S.A. Johnson (1966) and M.V. Krylov (1969).

Intensity of invasion after infection of chickens with Eimeriosis pathogens On days 5, 7, 10, 15 and 20, according to SS 25383-82 (ST SEV 2547-80) "Methods of laboratory diagnosis of coccidiosis", the number of oocytes in 1 gram of feces was determined.

The level of immunity in chickens against Eimeriosis was determined 21 days later by re-infection with a mixture of the same oocyte species at a dose of 2 LD_{100} with the first infected pathogens.

Blood morphological parameters were examined on days 5, 7, 10, 15, and 20 of the experiment by drawing blood from the chick's axillary vein.

The amount of hemoglobin in the blood was determined by the hemoglobin-cyanide method (with acetoncyanhydrin) on the instrument KFK-2. I.P.Kondraxin and etc. (1985).

The number of erythrocytes, leukocytes and platelets in 1 mm^3 of blood was counted in the Goryayev counting network by staining with Romanov Gimza and methylvialent dyes by the methods of I.A. Bolotnikov, Yu.V. Solovyov (1980).

The figures obtained during the experiment were statistically processed by the methods of S.I. Lyutinsky and V.S. Stepin (1989) and the differences between them were clarified using the Student's table $P \leq 0.05$.

Results and discussions

The efficacy of coccidiostatics is assessed based on the percentage of disease survival during the experiment, the average live weight gain of 1 chick at the end of the experiment, and the anti-Eimeriosis Indexindex (EQI).

It became clear during the experiment, Experiment chickens were infected with the pathogens Eimeriosis and Colibacillosis at doses O‘D_{50-75} when taking amprovet 2.5%, Toltrox 2.5% and Chimcoccidium-7 coccidiostatics according to the instructions for 8-10 days their survival rates are 100%, while at the end of the experiment the average live weight gain per 1 chick was 139.4, 139.0, 126.0%, the anti-eimeriosis indices were 195.2, 194.0, and 186.0 points respectively.

Chickens in the second comparatively untreated control group showed clinical signs of Eimeriosis from the fifth day of the experiment, with a 40% survival rate, and at the end of the experiment, the average live weight gain per hen was 17.0% EQI-52.0 (Table 1).

Specific activity of amprovet 2.5%, Toltrox 2.5% and Chimcoccidium-7 coccidiostatics in chicken eymeriosis.

1-Table

№ T/r	Name of groups	Name of drugs	Quantity (mg / kg with food)	Number of chickens in groups	At the beginning of the experiment, the average weight of a chicken (gr)	Conservatism (in %)	At the end of the experiment, the average live weight of 1 chick (gr)	Percentage of live weight gain (%)	EQI (200 points)
1	Undamaged comparative group	-		20	125	100	308.0	146.4	200
2	Comparative control of untreated lesions	-		20	120	40	140.0	17.0	52.0
3	Experiment	amprovet2, 5% li	500	20	119	100	285.0	139.4	195.2
4	Experiment	Toltrox2,5 %li	1ml/l suv bilan	20	121	100	289.0	139.0	194.0
5	Experiment	Chimcoccidium-7	500	20	122	100	276.0	126.0	186.0

To determine whether or not amprovette 2.5%, Toltrox 2.5%, and Chimcoccidium-7 coccidiostatics used in laboratory experiments affect the body's immune response to Eimeriosis, On the 21st day of the experiment, all chickens in 5 groups were re-infected with a syringe probe with 2 O‘D_{100} % sporulated oocysts and the results were as follows: chickens in groups 2-3-4 had a survival rate of 100%, while chickens in group 5 had a survival rate of 65%. Chickens in groups 1 and 5 showed clinical signs of Eimeriosis and had a survival rate of 80-65%. (Table 2).

Effects of amprovette 2.5%, Toltrox 2.5%, and Chimcoccidium-7 coccidiostatics on chicken immunity on chicken eimeriosis.

Table 2

№ T/r	Name of groups	Name of drugs	Quantity (mg / kg with food)	Number of chickens re-infected	Number of chicks killed by Eimeriosis	Conservatism (in%)
1	Undamaged comparative control	-		40	32	20
2	Damaged comparative control	-		14	-	100
3	Experiment	amprovet2,5% li	500	40	-	100
4	Experiment	Toltrox2,5%li	With 1ml/l of water	40	-	100
5	Experiment	Chimcoccidium-7	500	40	18	65

In order to study the effect of amprovet 2.5%, Toltrox 2.5% and Chimcoccidium-7 coccidiostatics used in the experiment on the intensity of the invasion, on days 5-7-10-15 and 20 of the experiment, the average number of oocysts in 1 g of waste was calculated by counting in Goryayev's grid. The results are given in Table 3.

Experiment and observations have shown that when groups 3, 4, 5 are given amprovet with 2.5%, Toltrox with 2.5% and Chimcoccidium-7 coccidiostatics in the prescribed amount according to the instructions on the 5th day of the experiment, 310, 213, and 300,000 oocysts were isolated with 1 g of feces. The chickens in the comparative control group, which were not treated, isolated 710,000 oocysts with 1 g of feces. (2-group).

On the 7th day of the experiment, the chickens of groups 3, 4 and 5 of the experimental group isolated 401-239-352 thousand oocysts with 1 g of feces, while the chickens of the untreated comparative control group (group 2) isolated 1.348 thousand.

By the 10th day of the experiment, the chickens in groups 3, 4, and 5 had averaged 42,000, 33,000, and 37,000 ounces per gram of feces, while the chickens in the second group had 192,000 oocysts.

On the 15th and 20th days of the experiment, amprovet 2.5%, chickens in the 3rd experimental group received an average of 8-2 thousand chickens per gram of feces, and chickens in the 4th group, i.e. Toltrox 2.5%, received 4-1 thousand. Chimcoccidium-7 chicks released 3-1 thousand oocysts with 1 gram of feces and 6-2 thousand oocysts with feces. (3-Table).

Effects of amprovette 2.5%, Toltrox 2.5% and Chimcoccidium-7 coccidiostatics on the intensity of invasion of chicken eymeriosis.

Table 3.

№	Name of groups	Name of drugs	Quantity (mg/kg with food)	Number of chickens in groups	Conservatism (in%)	Intensity of invasion (1 thousand oocysts in 1 g of feces)				
						Inspection dates				
						5	7	10	15	20
1	Undamaged comparative control	-		20	100	-	-	-	-	-
2	Damaged comparative control	-		20	40	710	1.348	192	6	2

3	Experiment	amprovet2 ,5% li	500	20	100	310	401	42	8	2
4	Experiment	Toltrox2,5 %li	With 1ml/l of water	20	100	213	239	33	4	1
5	Experiment	Chimcocci dium-7	500	20	100	300	352	37	3	1

In order to study the effect of eimeriosis in chickens and coccidiostats used against it on the number of erythrocytes in the blood, the amount of hemoglobin, the number of leukocytes and platelets, On days 5-7-10-15 and 20 of the experiment, blood was drawn from the axillary vein. The morphological parameters of the blood were determined on days 5-7-10 -15 and 20 of the experiment after exposure to Eimeriosis pathogens. Blood samples were taken from the chick's axillary vein to test the blood. The amount of hemoglobin in the blood was determined by the method FEK-56M with acetone hydrohydrin (I.P. Chondraxin and others). The number of erythrocytes, leukocytes, platelets in 1 mm^3 of blood in Goryaev counting network was stained with Romanov Gimza and methyl vialet dye, and was determined by the I.A.Balotnikov, Yu.V.Salavev (1980) method.

Experiment observations showed that the morphological parameters of chick blood in the experimental group treated with Eimeriosis pathogens with amprovet 2.5%, Toltrox 2.5% and Chimcoccidium-7 coccidiostatics in the comparatively pure control group until the end of the experiment did not differ from the blood counts of the chicks. $P \leq 0.05$. The results obtained are presented in Tables 4,5,6 and 7.

Effect of coccidiostats on erythrocyte counts in chickens (M±m)

Table № 4

№	Name of groups	Drug name	Soin of erythrocytes on the days of test (1012/l)				
			5	7	10	15	20
1	Non-infected comparative control group	-	2,71± 0,12	2,64± 0,12	2,73± 0,09	2,76± 0,08	2,75± 0,07
2	Infectious disease control group	-	2,11± 0,11x	1,45± 0,06xxx	2,58± 0,11	2,72± 0,16	2,81± 0,14
3	Experiment	amprovet2, 5% li	2,71± 0,09	2,73± 0,06	2,75± 0,09	2,71± 0,10	2,68± 0,07
4	Experiment	Toltrox2,5 %li	2,68± 0,12	2,67± 0,09	2,65 ± 0,09	2,71± 0,15	2,70± 0,13
5	Experiment	Chimcocci dium-7	2,63± 0,11	2,69± 0,05	2,70 ± 0,07	2,73± 0,09	2,69± 0,15

Effect of coccidiostats on the hemoglobin quantity in the blood of chickens. (M±m)

Table № 5

№	Name of groups	Drug name	Quantity of hemoglobin on test days (g/l)				
			5	7	10	15	20
1	Non-infected comparative control group	-	94,0± 0,6	95,0± 0,9	93,0± 5,8	94,0 ±0,6	93,0± 0,9
2	Infectious disease control group	-	73,0± 2,5xxx	65,0± 1,7xxxx	80,0± 2,3	91,0±2,4	96,0± 1,1
3	Experiment	amprovet2,5% li	93,0 ± 1,2	94,0± 0,9	97,0± 1,4	95,0 ±0,3	94,0±1,1
4	Experiment	Toltrox2,5%li	93,0 ±1,1	94,0 ±1,2	92,0± 0,9	96,0 ±1,1	94,0 ±1,2
5	Experiment	Chimcoccidium-7	92,0 ±1,5	93,0 ±1,7	90,0± 0,7	94,0 ±1,2	93,0 ±1,7

Effect of coccidiostats on leukocyte counts in chickens (M±m)

Table № 6

№	Name of groups	Drug name	Leukocyte count on test days ($10^{9/l}$)				
			5	7	10	15	20
1	Non-infected comparative control group	-	25,0± 1,45	26,3± 1,11	27,5± 1,16	27,2± 0,56	27,5± 2,19
2	Infectious untreated control group	-	27,1± 2,00	32,6± 1,5x	40,2± 2,29xxx	33,2± 2,45	29,0± 1,2
3	Experiment	amprovet2,5% li	25,8± 1,18	25,5± 1,27	28,3± 1,24	27,1± 1,63	27,3± 2,11
4	Experiment	Toltrox2,5%li	25,2± 1,14	26,5± 1,29	28,6± 1,13	27,0± 1,40	26,5± 1,69
5	Experiment	Chimcoccidium-7	26,5± 1,15	27,6± 1,17	28,7± 1,10	27,3± 1,15	27,0± 1,55

Effect of coccidiostats on platelet count in chickens (M±m)

Table № 7

№	Name of groups	Drug name	Platelet count on test days ($10^{9/l}$)				
			5	7	10	15	20
1	Non-infected comparative control group	-	26,0± 1,35	26,3± 1,01	27,3± 1,56	27,0± 0,98	27,5± 2,11
2	Infectious untreated control group	-	27,8± 2,00	32,5± 1,68^{x}	41,6± 7,79^{xxx}	34,1± 2,24^{x}	29,2± 1,34
3	Experiment	Amprovet 2,5% li	25,6± 1,58	25,4± 1,37	28,6± 1,44	27,8± 1,93	27,3± 2,11
4	Experiment	Toltrox 2,5%li	25,7± 1,44	26,2± 1,19	28,9± 1,03	27,0± 0,40	26,7± 1,89
5	Experiment	Chimcoccidium-7	26,4± 1,16	26,8± 1,20	28,0± 1,12	27,5± 1,56	27,5± 1,59

The main changes in the morphological parameters of the blood were observed in the morphological parameters of the blood of chickens in the second comparatively untreated group. On the fifth day of the experiment, the number of erythrocytes decreased by 18.3% and hemoglobin by 23.4%, while the blood count of the first group of chickens decreased. The number of leukocytes increased by 7%.

By day 7 of the experiment, erythrocytes in the blood of the second group of chickens decreased by 43%, hemoglobin by 31.5%, while the number of leukocytes in the blood of the first group of chickens decreased by 22.7%, platelets increased by 24.3%. By the tenth day of the experiment, erythrocytes decreased by 11.2% and hemoglobin by 14%, while leukocytes and platelets increased by 53.3% to 54.5% compared to the blood levels of the first group of chickens. By the fifteenth day of the experiments, the number of erythrocytes did not differ from that of the first group of chickens, but the hemoglobin decreased by 13%, while the number of leukocytes and platelets increased by 25.3-25%. By 20 days of the experiment, the number of leukocytes and platelets in the blood of the second group of chicks did not differ from the blood values of the first group of chicks.

The amount of retinol in the liver was also tested on days 5,7,15,20 of the experiment and the results were as follows: the amount of retinol in the liver of chickens in the group receiving amprovet 2.5%, toltrox 2.5%, and chimaxide-7 coccidiostats did not differ from the amount of retinol in the liver of chickens in the non-infected comparative control group. The main change was in the amount of retinol in the liver of chickens in the untreated control group. On days 5, 7, 10, and 15 of the experiment, 45%, 60.2%, 29.6%, and 14.4% of the comparatively clean control group had a decrease in retinol content in the liver of the chickens, and on day 20 of the experiment, group 1 did not differ from the amount of retinol in the liver of the chicks. The results are presented in Table 8.

The effect of coccidiostats on the amount of vitamin A in the liver of chickens.

Table № 8

№	Name of groups	Drug name	Quantity of vitamin A (mk mol / l) on the test days				
			5	7	10	15	20
1	Non-infected comparative control group	-	91,16± 1,29	100,76± 1,50	110,42± 1,95	123,75± 1,95	140,05± 2,55
2	Infectious untreated control group	-	60,03± 2,58^{xxx}	45,19± 2,65^{xxxx}	77,79± 1,29^{xxxx}	105,99± 3,91^{xx}	134,12± 1,95
3	Experiment	amprovet2,5% li	94,72± 3,21	102,26,± 1,29	109,65± 1,95	131,92± 1,95	144,40± 2,58
4	Experiment	Toltrox2,5%li	88,19± 2,65	94,09± 2,65	108,92± 1,29	125,99± 1,95	127,5± 1,59
5	Experiment	Chimcoccidium-7	87,20± 1,17	90,05± 2,55	107,88± 1,50	120,70± 1,88	125,3± 1,44

Note: xx- P< 0,02; xxx- P< 0,01; xxxx- P< 0,001;

Conclusions and suggestions

Based on data from laboratory experiments amprovet with 2.5%, toltrox with 2.5% and Chimcoccidium-7 coccidiostatics in chickens with 100% resistance to Eimeriosis, At the end of the experiment, the average live weight gain of 1 chick was 139.4, 139.0, 126.0%, EQI-195,2. 194,0 and 186,0 respectively. Chemical acid-7 has a negative effect on the body's immunity against eimeriosis. Reduced the intensity of the invasion by 4-5 times.

Thus, coccidiostats used in experimental eimeriosis in chickens did not adversely affect blood morphology and retinol levels in the liver. The main changes were changes in blood counts and retinol levels in the liver of chickens in the second untreated control group.

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