

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Experienced, Commission And Production Tests Of The Effectiveness Of The New Drug Verminal F In Mixed Invasion Of Intestinal Nematodoses Of Sheep.

Anatoly M. Bittirov^{1*}, Khasan Kh. Shakhbiev², Asiyat A. Bittirova¹, Seda Sh. Mantaeva², Islam Kh. Shakhbiev², Sofiyat A. Begieva¹

¹Department of Veterinary Medicine. Kabardino-Balkaria State Agrarian University, Nalchik, Russia.

²Department of Veterinary Medicine. Chechen State University, Grozny, Russia.

ABSTRACT

Nematodoses of the gastrointestinal tract of sheep and goats in the North Caucasus are more often represented by the helminthes of the Strongylata suborder, which occur in 37-100% of lambs in the form of associative invasions, which require the development of new domestic complex preparation. for their treatment and prevention. The goal is to check the antihelminthic activity of the drug "Verminal F" in case of mixed invasion of intestinal nematodoses of young sheep by the group method. Experiments to test the anthelmintic activity of the drug Verminal F in mixed invasion of gastrointestinal nematodes in young sheep were conducted on 18 heads. Experimental and control lambs (n = 18) were divided into 3 groups of 6 animals each. Young ewe 1 group (n = 6), infected with mixed invasion of gastrointestinal nematodes, was given the anthelmintic drug Verminal F at a dose of 20 mg / kg body weight, group 2 of lambs (n = 6) at a dose of 30 mg / kg body weight, once, also by group method. Young ewe of the 3rd group (n = 6) served as a control, as infested with intestinal strongylatoses, not receiving a new anthelmintic drug Verminal F with food. In experiments with group assignment that the new multidispersed antihelminthic drug Verminal F at a dose of 30 mg / kg body weight, mixed with feed 1:50, showed EE and IE - 100% and is recommended as an effective facilities deworming against nematodes of gastrointestinal tract. For drug Verminal F, a dose of 30 mg / kg of body weight for the gastrointestinal nematodoses of sheep is therapeutically effective. Extensefficiency of the new antihelminthic Verminal F at a dose of 30 mg / kg of body weight against associative invasion of nematodes of sheep during the commission tests amounted to 92,0% with intensefficiency (IE) – 94,5%. Extensefficiency of the new antihelminthic Verminal F in a dose of 30 mg / kg of body weight against the background of associative invasion of nematodes of the gastrointestinal tract of sheep during production tests amounted to 90,6%, with IE of the drug - 91,8%. Complex antihelminthic compound Verminal F at a dose of 30 mg / kg body weight, mixed with food 1:50 experimentally, in commission and production experiments is a highly effective drug and is recommended for the treatment and prevention of nematodoses of the gastrointestinal tract of sheep.

Keywords: sheep; mixinvasia; nematodes, drug; Verminal F; dose; extensefficiency; Intensefficiency.

**Corresponding author*

INTRODUCTION

Strongylatoses of the gastrointestinal tract of sheep and goats on the territory of the subjects of the North Caucasus in population of young animals is found with EI from 53.5 to 100% [1, 4, 5, 7, 10, 13, 15]. Young sheep have epizootic manifestations of invasion with EI of 45–89% [2, 4, 7, 8, 9] with the formation of pasture biotopes over a large territory [5, 8, 10].

In this regard, the development of new complex drugs for the treatment and prevention of intestinal nematodes of sheep is an important task [1-15].

The goal is to check the antihelminthic activity of the drug "Verminal F " in case of mixed invasion of intestinal nematodes of young sheep by the group method.

MATERIALS AND METHODS

Experiments to test the anthelmintic activity of the drug Verminal F in mixed invasion of gastrointestinal nematodes in young sheep were conducted on 18 heads. Experimental and control lambs (n = 18) were divided into 3 groups of 6 animals each. Young ewe 1 group (n = 6), infected with mixed invasion of gastrointestinal nematodes, was given the anthelmintic drug Verminal F at a dose of 20 mg / kg body weight, group 2 of lambs (n = 6) at a dose of 30 mg / kg body weight, once, also by group method. Young ewe of the 3rd group (n = 6) served as a control, as infested with intestinal strongylatosis, not receiving a new anthelmintic drug Verminal F with food. According to the scheme of the experiment, after 3, 5, 7, 10 and 15 days after a single injection of the new drug, Verminal F, the feces of all individuals underwent coprolarascopy [6].

Commission tests of Verminal F were carried out on 100 lambs, production experiments on 500 individuals of Karachai lambs. The results of experimental testing of the antihelminthic composition Verminal F with strongylatosis of young sheep were subjected to statistical processing using the "Biometrics" program.

RESULTS

New antihelminthic drug Verminal F per 1 g of powder includes: albendazole 250 mg, fenbendazole 200 mg, copper chelate 150 mg, dry bentonite 400 mg. In the 1st experimental group (n = 6) sheep with mixed invasion of nematodes of the gastrointestinal tract when administered with the group method of the new drug Verminal F at a dose of 20 mg / kg of body weight with food 1: 50, showed a rather high extensefficiency - 83, 33% and intensefficiency (IE) – 91,12% (Table 1). At the same time, in the 2nd group of lambs (n = 6) with mixed invasion of intestinal nematodes, a new anthelmintic composition Verminal F in a dose of 30 mg / kg of body weight showed extensefficiency 100% with i intensefficiency (IE) - 100%.

This dosage of the new composition Verminal F should be recognized as an effective therapeutic dose (Table 1). Yarki of the 3rd group (invasive control, n = 6) remained infected with intestinal nematodes when detecting 68.7-72.2 ekz. of eggs and larvae in 5 g of feces.

Table 1- Efficacy of Verminal F anthelmintic composition in associative invasion nematodes of gastrointestinal sheep

Group	The number of infected lambs	The number of free from nematodes of lambs after treatment	EE, %	The number of eggs and larvae of nematodes in 5 g of feces of lambs, ekz.		IE, %
				Before therapy	After therapy	
1	6	5	83,33	67,2±7,3	5,9±0,7	91,12
2	6	6	100	71,4±7,5	-	100
3	6	0	0	68,7±6,4	72,2±6,6	0

Extensefficiency of the new antihelminthic composition Verminal F at a dose of 30 mg / kg of body weight against associative invasion of nematodes of the gastrointestinal tract of sheep during the commission tests amounted to 92.0% with intensefficiency (IE) – 94,5% (Table 2).

Table 2- Efficacy of Verminal F anthelmintic composition in associative invasion nematodes of gastrointestinal sheep at commission tests (according to coprolaroscopy)

Group	The number of infected lambs	The number of free from nematodes of lambs after treatment	EE, %	The number of eggs and larvae of nematodes in 5 g of feces of lambs, ekz.		IE, %
				Before therapy	After therapy	
1	100	92	92,0	65,8±5,2	3,6±0,5	94,5
2	100	0	0	67,4±6,4	70,8±5,9	0

Extensefficiency of the new antihelminthic composition Verminal F in a dose of 30 mg / kg of body weight against the background of associative invasion of nematodes of the gastrointestinal tract of sheep during production tests amounted to 90,6%, with intensefficiency (IE) of the drug - 91,8% (Table 3),

Table 3- Efficacy of Verminal F anthelmintic composition in associative invasion nematodes of gastrointestinal sheep during production tests (according to coprolaroscopy)

Group	The number of infected lambs	The number of free from nematodes of lambs after treatment	EE, %	The number of eggs and larvae of nematodes in 5 g of feces of lambs, ekz.		IE, %
				Before therapy	After therapy	
1	500	453	90,6	69,3±7,5	5,7±0,6	91,8
2	100	0	0	72,6±5,8	74,3±6,7	0

Thus, the complex antihelminthic compound Verminal F in a dose of 30 mg / kg body weight, mixed with 1:50 feed experimentally, in commission and production experiments is a highly effective drug and is recommended for the treatment and prevention of nematodes of the gastrointestinal tract of sheep for group administration with feed.

DISCUSSION

The test results of the new antihelminthic drug Verminal F against the gastrointestinal nematodes of sheep were obtained by us for the first time. New data were obtained on the therapeutic efficacy of Verminal F at a dose of 30 mg / kg of body weight of lambs. At the same time, information on the need to develop methods for group treatment and prevention of mixed invasion of gastrointestinal nematodes of sheep is consistent with the positions of many well-known authors [1-15].

CONCLUSION

For the new antihelminthic drug Verminal F, in the gastrointestinal nematodes of sheep, a dose of 30 mg/ kg of body weight is therapeutically effective. During the experiments, Verminal F at a dose of 30 mg / kg body weight in a mixture of 1:50 with food once showed a 91-100% effect in mixed invasion of nematodes of the gastrointestinal tract of sheep by the group method. The complex antihelminthic compound Verminal F in a dose of 30 mg / kg body weight, mixed with 1:50 feed experimentally, in commission and production experiments is a highly effective drug and is recommended for the treatment and prevention of nematodes of the gastrointestinal tract of sheep for group administration with feed.

Authors' Contributions

This study was developed and monitored by AMB. Collaborators SAB, KhKhSh, IKhSh, SShM collected soil and water samples from mountain sites in the region and conducted research on the contamination with eggs and Trichocephalus larvae (Schrank, 1788). AMB analyzed and interpreted data. All authors participated in the preparation of the material, read and approved the final manuscript.

ACKNOWLEDGMENTS

This work has no financial support and was initiated by the authors AMB, SAB, KhKhSh, IKhSh, SShM.

REFERENCES

- [1] Kabardiev S.Sh., Gazimagomedov MG, Magomedov O.A., Begiev S.Zh., Karpushchenko K.A., Bittirova A.A., Makhiev I.I., Kalabekov A.A. (2016) Complex antiparasitic composition "Azinal plus" - 3 for chemotherapy and prevention of trichuriasis, ankilostomosis and echinococcosis of dogs. patent RUS 2614711 01.19..
- [2] Shakhbiev Kh.Kh. (2013) The results of epizootological studies and measures to combat the dominant helminthiasis of animals in the region of the North Caucasus. In the collection: Scientific support for the sustainable development of the agro-industrial complex in the North Caucasian Federal District. Collection of reports of the All-Russian scientific-practical conference with international participation. 592-595.
- [3] Zalikhanov M.Ch., Begieva S.A. (2018) Modern biological threats and global regulation to ensure the biosafety of livestock products. In the collection: Breeding on modern populations of domestic dairy cattle as the basis for the import substitution of livestock products. Materials of the All-Russian scientific-practical conference with international participation. FSBI "Belgorod Federal Agricultural Research Center of the Russian Academy of Sciences". 245-253.
- [4] Kabardiev S.Sh., Gazimagomedov M.G., Magomedov O.A., Abdulmagomedov S.Sh., Kabardiev Sh.S., Shakhmurzov M.M., Uyanaeva F.B., Bittirova A.A. (2017) Ecological and epizootic assessment of the fauna of bio- and geohelminths of sheep in the climatic zones of the North Caucasus. Veterinary Medicine; 9: 36-39.
- [5] Shakhbiev Kh.Kh., Shakhbiev I. Kh. (2016) Preparation "Triclafenal" and "FascoVerm plus" in the treatment of fascioles in the North Caucasus and imported breeds of ruminants. In the collection: Science and Youth. All-Russian scientific and practical conf. students, young scientists and graduate students; 90-94.
- [6] Kabardiev S.Sh., Begieva S.A., Bittirova A.A., Magomedov O.A., Begiev S.Zh., Alieva Zh.R. (2016) A new anthelmintic drug for the treatment and prevention of osterohagiosis in cattle and small ruminants. patent for the invention RUS 2608132 26.
- [7] Shikhaliyeva, M.A., Atabieva, Zh.A., Kolodiy I.V., Sarbasheva M.M., Bichieva M.M. (2012) The structure of the parasitocenosis of the North Caucasus. Veterinary Pathology.; 2 (40): 109-113.
- [8] Karpushchenko K.A., Kabardiev S.Sh., Begieva S.A., Bittirova A.A., Begiev S.Zh., Abdulmagomedov S.Sh. (2016) Anthelmintic agent for the treatment and prevention of fascioles, microceliosis and paramptomatosis of cattle and small ruminants. patent for the invention RUS 2612013 01.25.201601.2016.
- [9] Kabardiev S.Sh. (2014) Veterinary and sanitary problems of regional pathology of fascioles of sheep and goats in the region of the North Caucasus and new methods for their elimination. Scientific-practical publication. Makhachkala: 140-144.
- [10] Uspensky A.V., Kabardiev S.Sh. (2014) Problems of regional pathology and prevention of dangerous zoonoses in the region of the Central Caucasus. In the collection: Materials of scientific works of the Doctor of biological sciences, Prof. Bittirov A.M. "Theory and practice of innovative development of agrarian science". Dedicated to the 55th birthday. Caspian Zonal Vet. Research Institute. Makhachkala: 310-314.
- [11] Magomedov O.A., Kabardiev S.Sh., Musaev Z.G., Eldarova L.Kh., Shipshev B.M., Begiev S.Zh., Slonova E.S., Bittirova A.A. (2015) The effectiveness of new compositions based on albendazole and fenbendazole in intestinal sheep nematodes. Theory and practice of combating parasitic diseases; 16: 57-58.

- [12] Begiev S.Zh., Bittirova A.A., Kabardiev S.Sh., Eldarova L.Kh., Musaev Z.G. (2015) Embryotropic properties of the new composition of fenbendazole and albendazole (panaverm plus)// Russian parasitological Journal. 3: 86-88.
- [13] Thakakhova A.A., Bittirova A.A., Berezhko V.K. (2017) The species composition of helminthes and the contamination of sheep in the mountain tracts of Kabardino-Balkaria at an altitude of 1200-2500 m. Sea. Theory and practice of combating parasitic diseases. 18: 492-495.
- [14] Gazimagomedov M.G., Kabardiev S.Sh., Magomedov O.A., Begiev S.Zh., Karpuschenko K.A., Mutaev I.M., Kalabekov M.I., Bittirova A.A.(2014) Integrated method of treatment of cattle fasciolesis. patent for invention RUS 2584212 12/8/2014.
- [15] Kabardiev S.Sh., Begiev S.Zh., Bittirova A.A., Shakhbiev Kh.Kh. (2016) New complex treatment of chronic fasciolesis of domestic goats. Proceedings of the All-Russian correspondence scientific-practical conference; 111-116.