



Research Article

EFFICACY AND ACCEPTANCE OF COMMONLY USED ANTHELMINTIC FOR CONTROL AND TREATMENT OF SHEEP PARASITES IN DISTRICT BANDIPORA

Showket Ahmed Ahanger¹, Muneer Ahmad Dar², Mubashir Ali Rather³, M Maroof Shah⁴, Imran Bashir⁵, Javaid Ahmad Baba⁶, Athar Ashraf⁷ and Arfat Aalum⁸

¹District Sheep Husbandry Officer Bandipora, ²Veterinary Assistant Surgeon BagtoorGurez, ³Veterinary Assistant Surgeon WaterhailBudgam, ⁴Deputy Director Disease Investigation Laboratory Nowshera, ⁵Veterinary Assistant Surgeon, Sheep Breeding Farm, Kralpathri, ⁶Assistant Director Sheep Breeding Farm, Kralpathri, ⁷Veterinary Assistant Surgeon, Sheep Breeding Farm, Hardeshiva, ⁸Veterinary Assistant Surgeon, Bandipora

ARTICLE INFO

Article History:

Received 15th February, 2020

Received in revised form 7th March, 2020

Accepted 13th April, 2020

Published online 28th May, 2020

ABSTRACT

Sheep husbandry contributes substantially to agrarian economy of Kashmir as it is a core activity of rural masses over here. However, parasitic infestations have negative impact on the sheep and goat production. To avoid the losses incurred by parasitic infestation in sheep and goat, anthelmintic are used by farmers. The present article deals with the acceptance of different anthelmintic by farmers in District Bandipora.

Key words:

To avoid the losses incurred by parasitic infestation in sheep and goat, anthelmintic are used by farmers.

Copyright©2020 Showket Ahmed Ahanger et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Sheep and goat rearing play vital role in rural economy of Kashmir as it provides nutritional security during crises due to crop failure and other natural catastrophes (Rather *et al.*, 2020). Hence sheep and goat rearing is finance elevator of poor farmers through production of meat, wool, pelts and manure. However, parasitic disease conditions in acute and chronic form have negative impact on the overall sheep/goat production therefore, economy of poor farmers. The parasitic implications in sheep and goat include ill health, discomfort, decreased production, anemia, vital organ damages, lymphatic obstruction and secretion of toxins endanger the life of animals. In order to counter the negative impact of parasitic diseases of sheep and goat, anthelmintic are used. Anthelmintic are group of drugs used to treat parasitic infections caused by helminths inhabiting gastro intestinal (GI) tract and other body organs. Commonly used anthelmintic in Kashmir along with dose/kg, indications and withdrawal period are presented in Table1. The present article deals with the acceptance and efficacy of commonly used anthelmintic for parasitic ailments in sheep by Department of Sheep Husbandry.

METHODOLOGY

For assessing the efficacy and acceptance of anthelmintic by sheep farmers and vets approved and purchased by Department of Sheep Husbandry, a survey was conducted in district Bandipora through structured questionnaire.

Anthelmintic Resistance and Efficacy

In human and animals, pathogenic helminths have been spreading causing range of disorders and ailments. Therefore, for their effective control and treatment of such infections, anthelmintic drugs are used throughout the globe. Over and under dose of these drugs along with injudicious and unnecessary use has led to anthelmintic resistance and subsequently decreased efficacy of these compounds. Anthelmintic resistance is defined as decreased or no response of the parasite to the drug at a particular dose to which earlier it used to respond and finish itself. Once resistance by a parasite against a particular drug or group of chemicals is developed, it is passed genetically to other generations of the parasite. Different anthelmintic are used for treatment of parasitic infections in sheep and goat. Response to the treatment of parasitic infections varies for different classes of anthelmintic, used against different pathogens. Evaluation of efficacy of various anthelmintic as such needs a clinical trial for better and accurate results. However, the frequency of use, rotation of anthelmintic and observations on the response of treatment by the field veterinarians and farmers to some extent

*Corresponding author: **Showket Ahmed Ahanger**
District Sheep Husbandry Officer Bandipora

can give an idea of the efficacy of anthelmintic. Sheep farmers and field veterinarians usually gauge the efficacy of anthelmintic after the animal (to which it is given for illness and stunted growth) responds positively. Accordingly, if weight is increased and recovery occurs fast after treatment with a particular anthelmintic, then it is considered an efficient one. Our field experience (response to treatment) and questionnaire survey have shown that the efficacy of commonly used anthelmintic for treatment of infestations in district Bandipora follows the pattern as shown in Table 2.

Acceptance of anthelmintic by Sheep Farmers and Vets

On the basis of field inputs obtained from farmers and vets the order of acceptance of the anthelmintic for control and treatment of various parasitic infestations is presented in Table 2. Most (53.33%) of the sheep farmers were illiterate, not even having basic knowledge about anthelmintic used for the treatment of parasitic infections. Many workers have reported that most farmers engaged with livestock rearing are illiterate (Chowdhury *et al.*, 2018; Shirsat *et al.*, 2019). Therefore, the acceptance and use of a particular formulation of anthelmintic supplied and prescribed by the Department depends on the experience which they gain while deworming/dosing their sheep and goat in the long run. They consider a particular formulation good if it serves their purpose like weight gain in sheep and control of illness due to helminthes. However, some farmers have superstition that an anthelmintic is of good quality only when sheep suffer from diarrhea after drenching. This may be attributed to level and magnitude of literacy of farmers. Further, it was observed that farmers preferred drugs having wider safety margin. Therefore, it was observed mostly an efficient anthelmintic was rejected due to dose related side effects/toxic effects. For example, levamisole is one of the efficient drugs used for the treatment of benzimidazole resistant nematodes. However, due to narrow safety margin, it causes death in sheep especially in young ones and hence acceptance in the field for this drug is less. Similarly, closantel, a broad spectrum and effective drug is not preferred and accepted both by farmers and veterinarians owing to its narrow safety margin and toxic effects like inappetence, blindness, mydriasis and ophthalmoscopic papilledema (Swan, 1999) and toxic effects on brain, spinal cord, retina and optic disc (Prozesky and Pienaar, 1977). In severe cases of toxicity, blindness (Rao *et al.*, 2018), depression, incoordination, ataxia, muscle tremors, frothy salivation, head pressing, circling, teeth grinding, depression of the palpebral and pupillary reflexes, nystagmus, dilated pupils, and recumbency with opisthotonos, extension of the limbs, hyperesthesia and periodic tonic-clonic convulsions (Sakhaeaa and Derakhshanfar, 2010) and death on slightly higher doses have been seen. Although, Benzimidazole have broad spectrum of activity against nematodes, some cestodes and trematodes but are less preferred over ivermectin which is effective only against nematodes and ectoparasites.

CONCLUSION

From the study it is concluded that the field acceptance of anthelmintic depends upon its efficiency, spectrum of activity and toxicity levels. However, studies for acceptance should be based on fecal count after drenching is highly recommended.

Table 1 Commonly used anthelmintic for dosing/deworming of sheep in district Bandipora

Name of anthelmintic	Dose(mg/kg) of body weight	Indications	Withdrawal period (meat)
Fenbendazole	5-7.5	Nematodes	14
Albendazole	5(Roundworms) 7.5(flukes)	Intestinal worms, lung worms, stomach worms, adult flukes, and tape worms	7
Triclabendazole	10	All stages of liver flukes	56
Levamisole	7.5	Adult and larval GI round worms, lung worms, <i>Haemonchus contortus</i>	3
Praziquantel	10	Cestodes	--
Closantel	10	GI worms(<i>Haemonchus</i>), liver fluke, mange and mites	21-77
Rafoxanide	7.5	<i>Fasciola</i> flukes, <i>Haemonchus</i> and Sheep nasal bot	21-77
Oxyclozanide	10	Adult flukes	3-14
Ivermectin	0.2	Nematodal infections and Ectoparasites	14-28

Sandhu, 2013; Vercruyse and Claerebout, 2014.

Table 2 Efficacy and acceptance of commonly used anthelmintic in field conditions

Used for	Probable Efficacy	Drug accepted	Number of farmer (%)
Not having basic Knowledge	--	--	80 (53.33)
Nematodes	Levamisole>Fenbendazole>Albendazole>Recobendazole>Ivermectin	Fenbendazole Recobendazole	
<i>Haemonchus Contortus</i>	Closantel>Rafoxanide>Oxyclozanide>Ivermectin>Albendazole	Closantel Rafoxanide Oxyclozanide	70 (46.67)
Cestodes	Praziquantel>Albendazole	Praziquantel	
Trematodes (Liver flukes)	Triclabendazole>Closantel> Rafoxanide> Oxyclozanide	Triclabendazole Closantel	
Ectoparasites	Ivermectin>Closantel	Ivermectin	

References

Chowdhury, T. A., Marufatuzzahan.,Shanzana, P.,Zahan, F, N. (2018). Knowledge, awareness and risks of zoonotic diseases among the smallholder livestock farmers in suburban areas of Sylhet, Bangladesh. *Advances in biology and earth Sciences*.3(1):69-84

Prozesky, L. and Pienaar, J. G. (1977). Amaurosis in Sheep resulting from treatment with rafoxanide. *Onderstepoort J. vet. Res.* 44 (4): 257-260.

Rao, N., Parmar J.J., Sadhu D.B., Shah A.I. and Patel D.M. (2018). Closantel Intoxication in a Sheep: Case Study. *Int.J.Curr.Microbiol.App.Sci*7(10): 1445-1447.

Rather. M. A., Shanaz. S., Ganai. N. A. and Hamadani. A. (2020). Status of Farm Animal Genetic Resources of Jammu and Kashmir - A Review, 10(4): 39-48.

Sakhaeaa, E and Derakhshanfar, A. (2010). Polioencephalomalacia associated with closantel overdosage in a goat. *Tydskr.S.Afr.vet.Ver.*81(2): 116-117.

Sandhu H S (2013). Essential of Veterinary Pharmacology and Therapeutics (pp 1241-1283). Ludhiana Kalyani Publishers. 1241-1283

Shirsat, S. G., Kolhe, S. R., Nande, M. P., Khanvilkar, A. V, and Shende, T. C. (2019). Socio Economic Status and Sheep Husbandry Practices of Migratory Shepherds in

Western Maharashtra, *Int. J. Pure App. Biosci.* 7(2): 105-112.

Swan, G. E. (1999). The pharmacology of halogenated salicylanilides and their anthelmintic use in animals. 0038-2809 *Tydskr.S. Afr.Vet.Ver.*, 70(2): 61-70.
Vercruysse J and Claerebout E (2014). Overview of Anthelmintics. MSD Manual Veterinary Manual.

How to cite this article:

Showket Ahmed Ahanger *et al* (2020) ' Efficacy and Acceptance of Commonly Used Anthelmintic for Control and Treatment of Sheep Parasites in District Bandipora', *International Journal of Current Advanced Research*, 09(05), pp. 22301-22303. DOI: <http://dx.doi.org/10.24327/ijcar.2020.22303.4393>
