

COMPARATIVE EFFICACY OF RAFOXANIDE, ALBENDAZOLE AND TRICLABENDAZOLE AGAINST FASCIOLIASIS IN SHEEP

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The efficacy of rafoxanide, albendazole and triclabendazole in sheep naturally infected with *Fasciola gigantica* and *F. hepatica* was studied. The results indicated that triclabendazole is virtually 100% effective against fascioliasis whereas the efficacy of rafoxanide and albendazole was 97.1 and 95.7%, respectively. No ill effects were observed in treated animals including a limited number of pregnant ewes.

INTRODUCTION

Over 27 million sheep exist in Pakistan (Anonymous, 1991-92). These are mainly raised as a source of mutton and wool. Tremendous annual economic losses due to ill health, mortality and lowered production of sheep may be attributed to the parasitic diseases. Among these, fascioliasis, caused by *Fasciola gigantica* and *F. hepatica*, is one of the major devastating diseases responsible for causing great economic losses to sheep industry in Pakistan (Kendall, 1966). It has been estimated that an adult fluke can suck upto 0.2 ml of blood in a day (Jennings *et al.*, 1956). Reduction in wool by 20-40% has been recorded in sheep (Barger and Southcott, 1978). It has also been estimated that 10.3% mortality in sheep is due to fluke infestation (Chaudhry and Khan, 1978). Fascioliasis thus causes diarrhoea, anaemia, low meat and wool production and even death.

The incidence of fascioliasis is mostly associated with low lying marshy and frequently inundated areas (Cockrill, 1974). In the absence of pasture dressing techniques, the affected animals have to be treated with anthelmintics. The present study was, therefore, undertaken to observe the effect of rafoxanide, albendazole and triclabendazole against fascioliasis in sheep so

as to select the most suitable and effective drug.

MATERIALS AND METHODS

Animals used: Two flocks of sheep comprising animals of various ages and of both sexes naturally infected with *F. gigantica* and *F. hepatica* were selected at Babakwal near Lahore. Some of the ewes were pregnant. Of these, 60 sheep showed heavy infestation of fascioliasis and were randomly divided into three groups i.e. A, B and C each having 20 animals. Animals in group A, B and C were treated with three different drugs.

Drugs used: Rafoxanide (Ranide-R, MSD AgVet) given subcutaneously at the dose rate of 7.5 mg kg⁻¹ body weight. It was given to sheep in group A.

Albendazole (Valbazen, SK & F) given orally to sheep in group B at the dose rate of 7.5 mg kg⁻¹ body weight.

Triclabendazole (Fasinex, Ciba-Geigy) given orally to animals in group C at the dose rate of 10 mg kg⁻¹ body weight.

Subsequent faecal examination of all animals was done on day zero, 3rd, 7th and 15th day post-treatment and egg counts were made by McMaster egg counting technique (Kelley, 1974). Animals which showed some faecal egg counts on 18th day were given a

second dose of respective drug on 18th day and faecal egg counts were made on 21st and 28th day post-treatment. Side effects of the drugs, if any, were also recorded. Effects of drugs on general body condition and pregnancy were also observed.

RESULTS

The results on the efficacy of rafoxanide, albendazole and triclabendazole against fascioliasis in sheep are given in Table 1. The efficacy of the drug has been expressed in percentage on the basis of reduction in faecal egg counts. After the treatment, efficacy increased with the passage of time and on the 15th day it was 87.1, 85.7 and 88.5% in case of rafoxanide, albendazole and triclabendazole, respectively. The efficacy further increased after the second dose and on 28th day it was 97.1, 95.7 and 100% in case of rafoxanide, albendazole and triclabendazole, respectively.

tion of the animals improved gradually after treatment.

DISCUSSION

Triclabendazole at two dose levels was 100% effective on 28th day post-treatment, whereas the efficacy of rafoxanide and albendazole was 97.1 and 95.7%, respectively. Similar results were also recorded by many other workers (Velarde *et al.*, 1989). Ramisz *et al.* (1986) found that two doses of triclabendazole at the rate of 10 mg kg⁻¹ body weight was 100% effective against mature and immature flukes. Edwards (1972) observed that rafoxanide was 97.7% effective against fascioliasis when given at the rate of 7.5 mg kg⁻¹ body weight, whereas Misra *et al.* (1989) recorded that two doses of albendazole (7.5 mg kg⁻¹ body weight) were 92% effective against mature and immature flukes.

Table 1. Efficacy of different fasciolicides against fascioliasis in sheep

Drugs used and dose rate	Number of sheep	Efficacy of different fasciolicides (%)				
		Single dose level			Two dose level	
		3rd day	7th day	15th day	21st day	28th day
Rafoxanide (7.5 mg kg ⁻¹ b.w.)	20	45.7	71.4	87.1	91.4	97.1
Albendazole (7.5 mg kg ⁻¹ b.w.)	20	42.8	71.4	85.7	92.8	95.7
Triclabendazole (10 mg kg ⁻¹ b.w.)	20	48.5	74.2	88.5	94.2	100

None of the drugs used showed any untoward effects, including pregnant animals. On the whole, the general body condi-

tion of the animals improved gradually after treatment. These results showed that triclabendazole found to be a drug of choice for eliminating mature and immature flukes. Rafox-

anide and albendazole also gave promising results. All the three drugs used in the present study were safe to administer even to pregnant animals. The general body condition of the animals improved gradually after treatment as the animals became free of parasitic load.

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