J. Vet. Malaysia (1999) 11(1): 33-35

SHORT COMMUNICATION

EPIDEMIOLOGY AND CHEMOTHERAPY OF STRONGYLOSIS IN HORSES

A. Raza[1], A. Maqbool[1] and B. Rashid[1]

[1]Faculty of Veterinary Science,
[2]Faculty of Animal Husbandry,
University of Agriculture,
Faisalabad-38040, Pakistan

SUMMARY

Epidemiology and chemotherapy of strongylosis were studied in 720 horses over a period of one year. Strongylosis was recorded in 167 (23.2%) horses. *Strongylus vulgaris* was the most common whereas *S. equinus* was least common. Highest prevalence (57.8%) was recorded during the month of October and the lowest (3.2%) was in January. Most cases of strongylosis were observed during autumn (53.1%) followed by summer (26.0%), spring (18.6%) and winter (12.1%). The prevalence was significantly ($p < 0.05$) higher (39.0%) among young animals below one-year old, but sex had no bearing on the prevalence of strongylosis. Anthelmintic trial revealed high efficacy (87.2%) of ivermectin compared to oxfendazole (82.2%) after 15 days, which increased to 100% and 97.3% efficacy respectively at 28 days post-treatment.

Keywords: Epidemiology, chemotherapy, strongylosis, horses

INTRODUCTION

Strongylosis is a widespread parasitic disease of equines. It causes anemia, general malaise, diarrhoea, verminous colic, unthriftiness, discomfort and loss of weight (Soulsby, 1982). Heavy infection results in normochromic, normocytic anemia and death. During migration of larvae, cerebro-spinal nematodosis has been reported to occur resulting in incoordination, inability to stand, paralysis of eyes and ears, shaking of the head, colonic convulsions and sudden death. The present study was, therefore, conducted to determine the seasonal influence on the prevalence of strongylosis in horses and the efficacy of two anthelmintic drugs.

MATERIALS AND METHODS

Animals

The study was conducted at the clinic of the Department of Clinical Medicine and Surgery, University of Agriculture, Faisalabad, Pakistan. During the one-year study period (January to December 1995), a total of 720 horses of various ages and sexes were examined. To determine the effect of season on the prevalence of disease, the year was divided into 4 seasons: winter (November to February), spring (March and April), summer (May to August) and autumn (September and October).

Prevalence study

A total of 720 faecal samples collected either per rectum or at the time of defecation was examined during the study period. The samples were examined by the direct smear method as described by Soulsby (1982) to determine the presence of the parasitic ova while faecal egg counts were determined using the McMaster egg counting technique. The counts were expressed as eggs per gram (epg) of faeces (Coles, 1986).

Therapeutic trials

A total of 45 horses of various ages and either sex, with heavy infection (1500-2000 epg of faeces) were randomly selected for therapeutic trials. They were randomly divided into three groups comprising 15 animals in each group. Group A was kept as control while animals in group B were injected with ivermectin (Ivomec, MSD) at 0.2 mg/kg body weight subcutaneously. Animals in group C were given oxfendazole (Systamax, Wellcome) at 10 mg/kg body weight orally.

Faecal egg counts were monitored on days 0, 3, 5 and 15 post-treatment. Animals still having faecal egg counts on day 15 were administered a second dose of the respective drug on day 18 before and faecal egg counts were determined again on days 21 and 28 post-treatment.

Data analysis

The efficacy of each drug was determined at days 3, 5, 15, 21 and 28 post-treatment based on the reduction in faecal egg counts. The following formula was used:

$$\text{Percent efficiency} = \frac{a-b}{a} \times 100$$

where

a = arithmetic mean of epg on day 0
b = arithmetic mean of epg on day *x* post-treatment

RESULTS

Prevalence

Out of 720 faecal samples collected, 167 (23.2%) were found positive for strongylosis. The severely infested animals exhibited anorexia, emaciation, roughened coats and sunken eyes while constipation, diarrhoea and stiff gait were observed only in some cases. *Strongylus vulgaris* was the most common while *S. equinus* was the least.

Fig. 1 shows prevalence of strongylosis according to the months. Highest prevalence (57.8%) was recorded during the month of October whereas lowest (3.2%) was in January. Most cases were observed in autumn (53.1%) followed by summer (26.0%), spring (18.6%) and winter (12.1%) (Fig. 2). The prevalence was significantly ($p<0.05$) higher (39.0%) among animals below one year than those above one year (16.7%) of age. Sex had no bearing on the prevalence of strongylosis as no significant ($p<0.05$) infection rates were observed between male 417 (24.5%) and female 303 (21.5%).

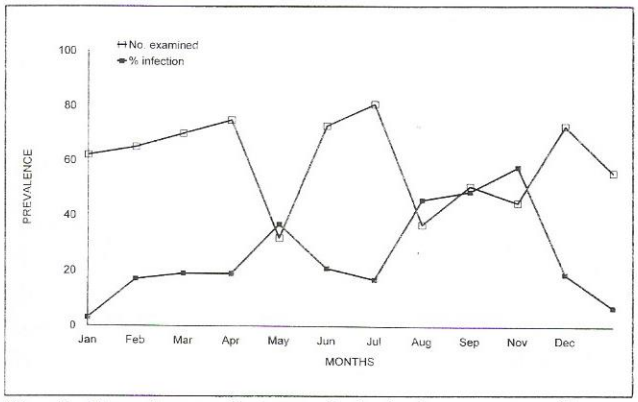

Fig. 1. Prevalence of strongylosis in horses according to months

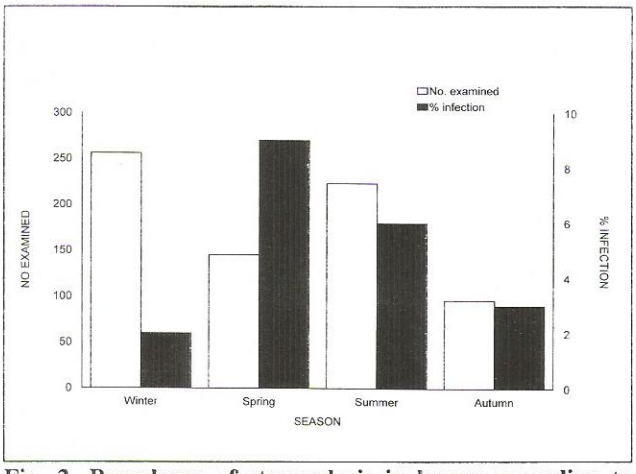

Fig. 2. Prevalence of strongylosis in horses according to seasons

Therapeutic trials

After 15 days of treatment, ivermectin showed higher efficacy (87.2%) against strongylosis compared to oxfendazole (82.2%). Following a second dose, the efficacy 100% and 97.3% for ivermectin and oxfendazole, respectively (Table 2). The control untreated group showed a gradual increase in faecal epg counts during the course of treatment. The general body condition and weight gain of all infected animals improved gradually post-treatment.

Table 2: Comparative efficacy (%) of ivermectin and oxfendazole in treatment of strongylosis in horses

Drug	n	1st dose			2nd dose	
		Day3	Day5	Day15	Day21	Day28
Ivermectin	15	46.4	65.5	87.2	95.7	100
Oxfendazole	15	43.5	63.1	82.2	91.1	97.3

DISCUSSION

The results of season-wise prevalence of strongylosis recorded in the present study are in agreement with those of Duncan and Love (1990) and Lahitte *et al.* (1990). However, following treatment, the epg decreased significantly on day 15 and decreased further following the second dose of ivermectin and oxfendazole. Similar efficacies had been recorded for ivermectin and oxfendazole (Drudge *et al.*, 1963; Egerton *et al.*, 1984; Burrows *et al.*, 1985; Ryan and Besi, 1985; Dipietro *et al.*, 1986). Hayatee *et al.* (1989) also reported 100% therapeutic efficacy of ivermectin on day 21 post-treatment against naturally occurring strongylosis in donkeys. Earlier, Lyons *et al.* (1976) reported 95% efficacy while Abdin *et al.* (1983) reported 99% efficacy for oxfendazole against different species of strongylus when given 2 dose levels. Thus, it appeared that ivermectin has better therapeutic efficacy than oxfendazole so for the treatment of strongylosis in horses is concerned.

REFERENCES

Abdin, E.L., Salim, Y.Z., Abdel Gawad, M.K. and Radwan, Y.A. (1983). *Egyptian J. Vet. Sci.* **20**: 39.

Burrows, R.O., Thomson, B.M. and Lindsey, M.J. (1985). *Aus. Vet. J.* **62**: 343.

Coles, M.E. (1986). *In:* Veterinary Clinical Pathology. W.B. Saunders Co. Philadelphia.

Dipietro, J.A., Tood, K.S. and Reuter, Jr. V. (1986). Anti-strongyle activity of a propylene glycol-glycerol fromal formulation of ivermectin in horses (mares). *Am. J. Vet. Res.* **47**: 874-876.

Drudge, J.H., Szanto, J., Wyant, Z.N. and George, E. (1984). Equine strongylosis. *Ibid.* **24**: 1217.

Duncan, J. and Love, S. (1990). Equine strongylosis due to *Strongylus vulgaris*. *Point Veterinaire* **21**: 849-857.

Egerton, J.R., Seward, R.L. and Robin, B. (1984). Parasitic infection in horses. *Recueil de Medecine Veterinaire* **160**: 595.

Hayatee, Z.G., Yousif, Y.A., Joshi, H.C. and Saleem, A.N. (1989). Anthelmintic activity of ivermectin against naturally occuring strongylosis in donkeys. *J. Vet. Parasitol.* **3**: 107-110.

Lahitte, J.D., Havrileck, B. and Ducos-de-Lahitte, J. (1990). Equine strongylosis due to *Strongylus equinus* and *S. edentatus*. *Point Veterinaire* **21**: 859-867.

Lyons, E.T., Drudge, J.H. and Tolliver, S.C. (1976). Critical test of anthelmintic activity of a paste formulation of thiabendazole in horses. *Am. J. Vet. Res.* **37**: 701-703.

Ryan, W.G. and Besi, P.J. (1985). *Vet. Rec.* **117**: 169

Soulsby, E.J.L. (1982). *In:* Helminths, Arthropods and Protozoa of Domesticated Animals. Baillier Tindall, London. pp. 156