

Effect of gastrointestinal nematodosis on the body weight and mortality in kids

M. Das, K.D. Prasad and L.B. Singh¹

Department of Parasitology,
Ranchi Veterinary College,
Birsa Agricultural University,
Ranchi-834 006, India

Abstract

The kids born of does naturally infected with gastrointestinal (GI) nematodes were found to have significantly reduced growth rate resulting in decreased body weight gain at the end of 10th week (2.4 ± 0.05 kg), as compared to kids from GI parasite-free pregnant does (4.38 ± 0.08). The per cent mortality was observed to be higher (27.27%) in the kids born of infected, untreated pregnant goats. The economic losses due to the G.I. nematodosis in goats could be reduced, if suitable parasite control measures are adopted during gestation period in goats.

Keywords: Gastrointestinal nematode, Body weight, Mortality, Goat.

Introduction

Gastrointestinal (GI) nematodosis is one of the major and widespread problems in rearing of goats affecting the health and productivity (Akerejola *et al.*, 1979). Mortality, reduced weight and other production losses could be minimized if better managemental and GI parasite control measures were regularly adopted in goats (Beriajaya *et al.*, 1986; Singh *et al.*, 1987). Limited information on the effect of controlling mixed nematodes infection in goats during pregnancy is available (Akerejola *et al.*, 1979 and Bariajaya *et al.*, 1986) which prompted the authors to take up the comparative study on kids born of parasitised and parasite-free pregnant goats.

Materials and Methods

Twelve Black Bengal goats in early stage of pregnancy having single or mixed natural infections with two or more of the common GI nematodes (*Haemonchus*, *Trichostrongylus*, *Oesophagostomum*, *Trichuris* and *Strongyloides* spp.) were grouped (1 and 2, 6 in each) and housed in separate pens. The goats of group 1 were rendered parasite-free by treatment with morantel citrate alongwith

by treatment with morantel citrate alongwith supporting therapy like astringents, liver stimulants, mineral supplements, antibiotics, etc., as per need up to kidding, while the goats of group 2 were kept as untreated control. The kids born of those goats were also maintained separately on mother's milk and some amount of balanced ration up to weaning. The average litter weight, weekly litter weight gain and/or loss, and mortality up to 10th week (weaning period) were recorded.

Results and Discussion

The average litter weights of the parasite treated goats (Group 1) and untreated (Group 2) pregnant goats were non-significant. Similar trend in the growth rate of kids born of both the groups was observed up to 7th week while the litter found to be significantly ($P < 0.05$) increased during 8th to 10th weeks (Table 1). An average of 27.27% mortality was noted in kids born of untreated control goats. The poor health conditions of these pregnant goats had decreased haemoglobin (9.07 ± 0.06) and packed cell volume (PCV) (27.17 ± 0.31) values in the blood during the period due to GI parasites indicated direct bearing on their health during pregnancy. In a study on pregnant pigs, the piglets born of parasitised pregnant sows were found to have reduced vitality, poor health and higher mortality (Sangeeta, 2001) as observed also in the present study. Similar

¹Department of Animal Breeding & Genetics.

observations in goats were also made by Beriajaya *et al.* (1986) and Handayani and Gatenby (1988). The results of the present study reaffirm that GI nematodosis cause substantial economic losses by way of reduced litter growth rate and increased mortality of the kids.

Table 1: Average weekly body weight (kg) gain in kids born of parasite free and parasitized pregnant does up to 10th week of age

| Week | Group 1 | Group 2 | Difference in avg. body weight (Gr.1 & 2) | 't' value |
|------------------|-------------------|-------------------|---|-----------|
| 0 (Birth wt.) | 1.48±0.08 (11) | 1.22±0.07 (11) | 0.26 | 2.4* |
| 1 | 1.63±0.08 (11) | 1.31±0.06 (11) | 0.32 | 3.2* |
| 4 | 2.21±0.08 | 1.67±0.06 | 0.54 | 4.99** |
| | 2.75±0.08 (11) | 1.91±0.07 (9) | 0.84 | 7.27** |
| 10 | 3.50±0.08 (11) | 2.25±0.08 (8) | 1.25 | 11.57** |
| | 4.38±0.08 | 2.46±0.05 | 1.92 | 15.68** |

Group 1: Morantel tartrate treated; Group 2: infected untreated

Figures in parentheses indicate number of kids in each group

*P < 0.05; **P < 0.01

Acknowledgements

The authors express thanks to the Dean, Ranchi Veterinary College, Ranchi for the facilities provided for conducting experiment at Goat Farm Unit. The financial help received from the RRPS-13 (NATP) project fund is also thankfully acknowledged.

References

- Akerejola, O.O., Veen, T.W.S.V. and Najoku, C.O., 1979. Ovine and caprine diseases in Nigeria: a review of economic losses. *Bull. Anim. Hlth. Prod., Africa*, 27: 65-70.
- Beriajaya, Stevenson, P., Jainudeen, M.R., Hahyuddin, M. and Hunu, J.E., 1986. *Livestock Production and Diseases in the Tropics*, pp. 28-30.
- Berrag, B. and Cabaret, J., 1998. Gastrointestinal and pulmonary nematode infections decrease goat productivity in Moroccan semi-arid conditions. *J. Helminthol.*, 72: 15-20.
- Cabaret, J., Anjorand, N. and Lecrec, C., 1989. Parasitic risk factors on pasture of French dairy goat farm. *Small Ruminant Res.*, 2: 69-78.
- Handayani, S.W. and Gatenby, R.M., 1988. Effects of management system, legume feeding and anthelmintics treatment of lambs in North Sumatra. *Trop. Anim. Hlth. Prod.*, 20: 122-128.
- Sangeeta, K., 2001. Studies on the incidence and therapeutic control of gastrointestinal parasite and their economic impact on their economics of pig production. M.V.Sc. Thesis, B.A.U., Ranchi. pp. 1-78.
- Singh, P., Sissodia, B.V.S. and Kunzuru, O.N., 1987. An economic analysis of livestock disease losses. *Indian Vet. J.*, 64: 227-230.