A STUDY ON AETIOLOGY OF ANAEMIA IN GOATS*

J. Anumol[1] , P.V. Tresamol[2,] M.G. Saranya[3], K. Vijayakumar[4] and M.R. Saseendranath[5]

Department of Veterinary Epidemiology and Preventive Medicine
College of Veterinary and Animal Sciences
Mannuthy - 680 651, Thrissur, Kerala

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Abstract

Anaemia can be due to various reasons like endoparasitism, ectoparasitism, haemoparasitism and nutritional deficiencies. It is a condition which silently kills the production capabilities and reproductive traits and suppresses the resistance power of animals. For the present study, 250 anaemic goats belonging to different age groups and breeds were selected and detailed investigations were carried out to assess the underlying causes behind their anaemia. Heavy endo and ecto parasitism was observed responsible for anaemia in majority of animals.

Keywords: *Goat, anaemia, aetiology*

Anaemia is a common and important clinical presentation in goats and characterised by pale mucous membranes, exercise intolerance, weakness, tachycardia, reduced growth and body weight. Major causes of anaemia include internal and external parasitism, haemoprotozoan diseases and nutritional deficiencies. The present study was undertaken to identify the etiological factors associated with anaemia in goats of Thrissur district.

Materials and Methods

Two hundred and fifty goats from Thrissur district belonging to different breeds and age groups showing visible signs of anaemia were selected and subjected to detailed investigation to identify the causes of anaemia. Animals with clinical signs like pale mucous membrane, exercise intolerance, tachycardia and rough hair coat suggestive of anaemia were selected and screened by estimation of Haemoglobin level (Hb) and Volume of Packed Red Cells (VPRC). Those goats with VPRC less than 22 per cent and Hb level lower than 7.5 g/dl were considered as anaemic. Detailed haematological and parasitological studies were conducted in all the cases to identify the factors associated with anaemia.

Examination of the animals was done to detect the presence of ectoparasites on the body of animals. Deep skin scrapings were collected from animals with skin lesions and subjected for microscopical examination with 10 per cent potassium hydroxide for detection of mites. The faecal samples were collected and subjected to microscopical examination for detection of parasitic ova and oocysts. Peripheral blood smears from the animals were prepared, stained with Giemsa stain and examined for haemoparasites.

Results and Discussion

Out of the 250 anaemic goats, 102 (40.8 per cent) were having endoparasitic infection, 54 (21.6 per cent) were infested with ectoparasites and 20 animals (8 per cent) were

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1&3. Post Graduate Scholars
2. Associate Professor
4. Associate Professor (on deputation as Joint Commissioner, AH, Govt. of India)
5. Professor and Head

infected with coccidiosis. Haemoparasitic infection was noticed in 67 (26.8 per cent) animals. Seven animals (2.8 per cent) were not having any parasitic infestation. The major reason for anaemia was external and internal parasitism. This was in accordance with the finding of Shinde and Rajguru (2009). According to Yakhchali, (2006) ectoparasitism was the major cause for anaemia in goats in Iran which may be due to climatic differences and geographical peculiarities.

Ova of various species like *Strongyle*, *Strongyloides*, *Trichuris*, *Moneizia, Amphistomes* and *Schistosomes* were detected in goats. Similar observations were made in goats of Kerala by Arun Shaju (2001). Among the cases of gastrointestinal helminthic infections, strongylosis was the predominant one with 50 per cent occurrence, followed by moneiziosis (15.69 per cent), strongyloidosis (9.6 per cent), trichuriosis (4.90 per cent), amphistomosis (4.90 per cent) , schistosomosis (0.98 per cent) and mixed infection was noticed in 13.73 per cent of goats.

Prevalence of strongylosis among goats was higher than the earlier reports from Kerala. This may be due to the fact that the present observation was obtained from a group of anaemic animals. Kaplan *et al*. (2004) opined that the infection with *Haemonchus contortus* may cause severe anemia and hypoproteinaemia, leading to depression, loss of condition, reduced productivity and eventual death.

Occurrence of coccidiosis in the present study was found lower than from the previous reports. Kids infected with coccidiosis developed severe anaemia characterised by pale mucous membranes, dehydration and the mortality was more than 50 per cent in young animals in some flocks (Ozlem *et al*., 2004).

Moneiziosis accounted for the development of anaemia in 15.69 per cent of the animals. Dullness, poor appetite, pale visible mucous membranes, occasional diarrhoea, rough skin and coarse body coat were observed in lambs affected with moneiziosis.

Amphistomosis was recorded in 4.9 per cent of the anaemic animals. In the study group, only one goat was affected with severe anaemia due to schistosomosis. Progressive anaemia is reported to be an important clinical feature in schistosomosis which became more severe with passage of time reducing haemoglobin to four to five gram/decilitre often causing mortality (Gupta *et al*., 2006).

Ticks were the most common ectoparasite found among goats (38.89 per cent), followed by lice (27.78 per cent), mites (25.93 per cent) and fleas (7.40 per cent). Yakhchali (2006) had similar findings in Iran. Favourable climates, poor management, poor awareness of farmers and poor animal health extension services are believed to have contributed for the widespread occurrence of ectoparasites as suggested by Sertse and Wossene (2006).

Ticks identified were either *Haemaphysalis bispinosa* or *H. spinigera.* Lice present were mainly *Linognathus* and fleas were *Ctenocephalids*. From the cases of mange, species of *Demodex, Sarcoptes and Psoroptes* were identified.

Dimri *et al.* (2006) identified the ectoparasites of goats as ticks (*Boophilus, Hyalomma, Dermacentor, Haemaphysalis*, *Ixodes, Rhipicephalus* and *Amblyomma*), lice (*Damalinia, Haematopinus*, *Solenopotes* and *Linognathus*) and mites (*Sarcoptes, Psoroptes* and *Demodex*). Anish *et al.* (2006) observed that the kids with severe cat flea infestation particularly on the chest, abdomen and legs were restless, week, had poor growth rate and a dull rough coat.

Various haemoparasitic diseases were diagnosed by examination of Giemsa stained blood smears. Anaplasmosis was having the highest occurrence among these diseases. A total of 46 cases of anaplasmosis (79.31 per cent), 13 cases of theileriosis (22.41 per cent) and 4 cases of babesiosis (6.89 per cent) were identified. Useh *et al.* (2002) also reported, 27 per cent of the goats with haemoparasitic infections in Zaria of Nigeria and the haemoparasites identified include *Anaplasma ovis* (86 per cent), *Theileria ovis* (7 per cent), *T. mutans* (2 per cent), *Trypanosoma vivax* (2 per cent), *T. congolense* (2 per cent) and *Babesia motasi* (one per cent).

Seven anaemic goats of the group were not having any ecto or endoparasitic infections mentioned above. Anaemia in these animals may be due to nutritional deficiencies or other causes. Since parasitism is the major cause of anaemia in goats, proper treatment and control measures are to be adopted to alleviate the symptoms

of anaemia.

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