

ESTIMATION OF BLOOD HAEMOGLOBIN, SERUM IRON AND MAGNESIUM LEVELS IN CLINICAL CASES OF OVINE HAEMONCHOSIS

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The present study was conducted to determine the effect of natural infection of *Haemonchus contortus* on blood haemoglobin, serum iron and magnesium levels in sheep. Qualitative and quantitative faecal examinations were carried out. Blood samples of positive cases were obtained from jugular vein. Blood haemoglobin, serum iron and magnesium levels were estimated spectrophotometrically by using standard diagnostic kits. It was found that decreased levels of haemoglobin and serum iron were directly proportional to the severity of infection. On the other hand, serum magnesium level remained almost the same in infected and non-infected sheep.

INTRODUCTION

Haemonchosis caused by *Haemonchus contortus* is a major parasitic disease responsible for causing great economic loss in sheep. Hussain and Akram (1967) reported an overall loss of 23.8% in meat production and 40% in wool production in lambs suffering from haemonchosis. The main symptoms of the disease are anaemia, weakness and chronic diarrhoea which may result in biochemical changes in the serum including alterations in serum glucose, minerals, vitamins and enzymes. Sheep with heavy parasitic infection have been observed to suffer from iron deficiency (Georgi, 1964) and low haemoglobin levels (Thomas and Ali, 1983).

The present study was, therefore, undertaken to estimate the level of haemoglobin, serum iron and magnesium in clinical cases of haemonchosis so that it may aid in accurate diagnosis and prove helpful in devising ways and means to treat haemonchosis.

MATERIALS AND METHODS

The faecal and blood samples were collected from Indoor and Infectious

Diseases, Wards. College of Veterinary Sciences, Lahore and Municipal Corporation Abattoir, Lahore.

The faecal samples of 200 sheep were taken directly from rectum, preserved in 10% formaline and were stored at room temperature. The faecal examination was performed by direct smear method and floatation technique. McMaster Egg Counting Technique was used to count the number of eggs per gram of faeces (EPG) (Soulsby, 1982).

Blood samples for haemoglobin estimation were collected in test tubes containing EDTA from the jugular vein of infected animals and serum was used for iron and magnesium estimation by using diagnostic kits. The data were subjected to statistical analysis by using students "t" test (Snedecor and Cochran, 1967).

RESULTS AND DISCUSSION

Out of 200 infected sheep, 140 were found positive for light infection (EPG 100-2500), 60 had moderate infection (EPG 2500-8000), while none were having heavy infection (8100-10,000 EPG) of *Haemonchus contortus*. Biochemical analysis of whole blood and serum of sheep suffering from haemonchosis is shown in Table 1.

Table 1. *Effect of haemonchosis on blood haemoglobin, serum iron and magnesium levels*

Parameters	No. of sheep	Normal values	Light infection	Moderate infection
Haemoglobin (gm/100 ml)	200	10 \pm 2.0	7.04 \pm 0.09	4.54 \pm 0.06
Iron (ugm/100 ml)	200	194.0 \pm 28.0	158.27 \pm 0.46	141.15 \pm 0.63
Magnesium (mgm/100 ml)	200	2.20 \pm 0.3	2.19 \pm 0.02	2.19 \pm 0.02

The results of this study showed that there was 29.6 and 45.5% decrease in the haemoglobin content in the blood of sheep suffering from light and moderate infection, respectively. Similar findings were observed by Pradhan and Jonstone (1972) and Zajicek (1973).

The decrease in serum iron level was 18.42 and 27.24% in sheep suffering from light and moderate infection, respectively. These results confirmed the

findings of Georgi (1964) who observed a significant decrease in serum iron content in sheep infected with intestinal parasites. No significant difference was observed in the serum magnesium content of blood in sheep having light or moderate infection. Similar results were reported by Albees and Lejambre (1983).

It is concluded that the level of blood haemoglobin and serum iron in ovine haemonchosis was directly proportional to the degree of infection, whereas the level of serum magnesium was not affected in either light or moderate infection.

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