CLINICAL MANAGEMENT AND HAEMATO-BIOCHEMICAL CHANGES IN BABESIOSIS IN BUFFALOES

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ABSTRACT

Babesiosis in four graded Murrah she buffaloes aged between 6-8 years with symptoms of haemoglobinuria, anorexia, suspended rumination, reduced milk yield, depression and reluctance to move was studied. The clinical examination revealed elevated temperature ranging from 102.5°F to 104.2°F, accelerated heart rate and respiration and icteric mucus membranes with mild to moderate tick infestation. Haematological studies revealed reduced Hb, PCV and TEC. Serum chemistry revealed hyperglycemia, hyperbilirubinemia, BUN, AST and hypoproteinemia. Urine was coffee coloured and positive for haemoglobin, glucose and bile pigments. All the affected animals were treated with Diminazine aceturate along with supportive therapy, except for one animal which succumbed to illness, all the animals became afebrile by 24 h. The colour of urine became normal only after 3 days, while milk production was restored to its normal level by 3 weeks.

Keywords: babesiosis, haemoglobinuria, Diminazine aceturate, coffee coloured urine, jaundice

INTRODUCTION

Babesiosis is an important tick borne haemoprotozoan disease of cattle in many tropical countries including India. It causes great economic loss due to reduced production and occasional mortality (Banerjee et al., 2005). It is characterized by high rise of temperature, jaundice, weakness and haemoglobinuria. The disease may be so acute as to cause death within a few days, during which the PCV falls below 20% with parasitaemia, which is usually detectable once the clinical signs appear (Urquhart et al., 1996). The present communication reports clinico-biochemical changes and the response to therapy in four buffaloes affected with babesiosis.

CASE HISTORY AND CLINICAL OBSERVATIONS

Four graded Murrah she buffaloes aged between 6-8 years with symptoms of haemoglobinuria, anorexia, suspended rumination, reduced milk yield, depression and reluctance to move that were brought to the Teaching Veterinary Clinical Service Complex over a period of six months from August 2005 to January 2006 were included in the present study. The clinical examination revealed elevated temperature ranging from 102.5°F to 104.2°F, accelerated heart rate and respirations. The mucous membranes of the ailing animals were icteric. In one animal, nervous signs like trembling and mild convulsions were observed. Mild to moderate tick infestation was also found in all the cases. Blood was collected for parasitological as well as routine hematological examinations, and serum was...
collected for biochemical estimations. The Giemsa stained blood smears revealed the presence of barnesia organisms. Haematological studies revealed $6.78 \pm 0.75$ g/dl Hb, $20.33 \pm 2.32$% PCV, $4.58 \pm 0.41$ millions/cmm total RBC, $9.2 \pm 0.63$ thousands/cmm total WBC. The differential leucocytes count exhibited $45.75 \pm 7.81$% neutrophils, $50.25 \pm 7.55$% Lymphocytes, $2.00 \pm 0.41$% monocytes and $2.00 \pm 0.82$% eosinophils. Serum chemistry revealed $5.70 \pm 0.41$ g/dl total protein, $98.5 \pm 7.85$ mg/dl glucose, $4.34 \pm 0.97$ mg/dl bilirubin, $35.91 \pm 2.73$ mg/dl blood urea nitrogen and $62.3 \pm 5.81$ units/ml AST. Urine samples of all the affected animals were coffee coloured and were positive for haemoglobin, glucose and bile pigments, which were in agreement with the findings of Bhikane et al. (2001).

**TREATMENT AND DISCUSSION**

All the affected animals were treated with Diminazine aceturate 10 mg/kg body weight intramuscularly along with supportive therapy (Inj. Imferon 5-10 ml IM, Inj. B complex 10 ml IM, and Inj. Chlorpheniramine maleate 15 ml IM on the first day). The animals became afebrile by 24 h after therapy. Out of the four animals, one succumbed to illness in spite of treatment; this might have been due to infection in an advanced stage prior to initiation of therapy. The colour of urine became normal only after 3 days, while the milk production was restored to its normal level by 3 weeks. Prolonged convalescent period results in considerable loss of production for a long period in babesiosis (Urquhart et al., 1996). Supportive therapy with B complex vitamins was continued for 4 days while oral haematinic mixture was given till complete recovery.

The clinical signs can be attributed to multiplication of organisms in peripheral vessels and resultant intravascular hemolysis. The hemolysis results in profound anemia, jaundice and hemoglobinuria. The neurological signs could be attributed to cerebral thrombosis and hypotension by activation of plasma kallikrein and disseminated intravascular coagulation leading to high mortality rates in cerebral babesiosis (Radostits et al., 2000).

In the present case, significantly lower values of Hb, PCV and TEC were observed. In acute infections there is large scale destruction of erythrocytes with intravascular hemolysis, indiscriminate phagocytosis of infected / non-infected erythrocytes by activated macrophage system and suppression of erythropoietic activity of bone marrow, and these contribute to anemia. Anemic hypoxia results in elevated pulse and respiratory rates. This could be due to compensatory mechanism of the body for proper oxygenation of the tissues (Tufani et al., 2009). These findings are in agreement with those of Ali et al. (1995) and Vivek et al. (1996). Leucocytosis may be due to stress associated with acute babesiosis (Bhikane et al., 2001).

Hyperglycemia might be due to intravascular hemolysis resulting in anemic anoxia, and the glucose values observed in the present report are in agreement with those of Ashok Kumar et al. (1995). Intravascular hemolysis results in marked hyperbilirubinemia and icterus. Diminazine aceturate has been reported to be highly effective drug against babesiosis which acts by blocking the replication of DNA of the parasite (Bhatt et al., 2005 and Bipin Kumar et al., 2008).

**REFERENCES**


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