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A STUDY ON PREVALENCE AND CLINICO-THERAPEUTIC MANAGEMENT OF BABESIOSIS IN H.F CROSS BRED CATTLE IN ANANTAPUR DISTRICT OF ANDHRA PRADESH

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ABSTRACT

The present study was carried out to determine the prevalence of Babesiosis in 162 H.F crossbred cattle based on blood smear examination during March 2012 to February 2013 in Madakasira and its surrounding villages. This revealed the over all infection rate of 8.02%, with high seasonal prevalence during Monsoon (10.76%) followed by Summer (7.40%) and least during Winter (4.65%). Typical symptoms of babesiosis like pyrexia 103.5-105°F, haemoglobinuria, anorexia and ruminal atony, pale to yellowish mucous membranes, dyspnoea, anaemia, decreased milk yield and reluctance to move were noticed in almost all affected animals. Haematological parameters revealed reduced Hb, PCV and TEC with significant neutrophilia and lymphopaenia. All affected animals were successfully recovered by combined therapy of Bernil, Melonex, Iron dextron (I/M), Dextrose (I/V) and Tefroli syrup (P.O) drugs except two animals which were ailed and dead. Ticks were completely removed from body coat by Butox spray.

INTRODUCTION

Bovine Babesiosis is an important haemoparasitosis caused by intraerythrocytic protozoa of the genus *Babesia* has got worldwide distribution especially in tropical and subtropical countries (Livio Martins *et al.*, 2006). Symptoms are more pronounced in exotic breeds compared to indigenous animals that is characterised by high rise of temperature, haemoglobinuria and anaemia (Aulakh *et al.*, 2005). Acute form of the disease may be fatal and death may occur within few days, during which the PCV falls below 20% and the parasitaemia may involve from 0.2% to 45% of the RBC depending on the species of *Babesia* (Tufani *et al.*, 2009). The present study was undertaken to study the prevalence and clinico therapeutic management of *Babesia* infection in H.F crossbred cattle in Anantapur district of Andhra Pradesh.

Key Words: *Babesiosis, H.F crossbred cattle, Haemoglobinuria, Bernil, Andhra Pradesh*

MATERIALS AND METHODS

The present study was carried out in Madakasira and its surrounding villages at Anantapur district of Andhra Pradesh from March 2012 to February 2013. A total of 162 H.F crossbred cattle presented to various Veterinary Dispensaries in and around Madakasira with a history of high fever, haemoglobinuria and reduced milk yield were suspected for *Babesia* infection. Thin blood smears were prepared from earvein/jugularvein, fixed in methanol for 5 minutes and stained with 1:20 dilution Giemsa for 30 minutes. Whole blood from jugular vein were collected in EDTA (Etylene diamine tetra acetic acid) vials were subjected to haematological examination viz, Hb% (Haemoglobin), PCV (Packed cell volume), TEC (Total erythrocyte count), TLC (Total leucocyte count), DLC (Differential leucocyte count), MCV (Mean corpuscular volume) and MCHC (Mean corpuscular haemoglobin concentration) as per methods described by Benjamin (1985).

Ticks from body coat were collected in 70% alcohol and processed for species identification. All infected animals were treated with Bernil @ 3.5mg /kg B.wt, with supportive drugs Melonex @0.5mg/ kg B.wt,

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Iron dextron (20%) 10ml(200mg/ml) by I/m, Dextrose Normal saline(20%) 10 ml / kg B.wt and liver stimulent drug Tefroli syrup. Farmers were advised to spray Butox @ 2ml/ lit of water and to take special care in shaded area with complete rest for 3 weeks.

RESULTS AND DISCUSSION

Based on blood smear examination, an overall prevalence of babesiosis in H.F cross bred cattle was recorded to be 8.02%. Seasonal prevalence of babesiosis revealed that the cattle were most affected during Monsoon (June-Sep) 10.76% followed by summer 7.40% and least during the winter 4.65%. Highest prevalence in monsoon was in accordance with the results of Bikane *et al.*, (2000), Wadhwa *et al.*, (2008) and contrast to the report of Aulakh *et al.*, (2005) who reported highest prevalence of babesiosis in summer (March-April). Radostits *et al.*, (2000) has observed seasonal variation in the prevalence of babesiosis in which greatest incidence usually occurs soon after a peak in tick population. Tick infestation in cattle was observed throughout the year in this study, but peak infestation was observed during summer. Ruprah (1985) opined that highest temperatute during summer is favorable for high surveillance of tick population subsequently increases their biotic potentiality as vectors soon after summer and peak incidence was observed in monsoon. Cross bred cattle population were more predisposed than indigenous cattle because of natural resistance and endemic stability between host-parasite relationships was in accordance with Radostits *et al.*, (2000). Blood smear examination revealed piroplasms of babesia with different morphology, varying from ovoid or vacuolar forms to annular ring forms typically paired pyriforms of babesia with acute angle. The observations are in accordance with Soulsby (1982). Clinical signs recorded in this study were fever 103.5-105°F, haemoglobinuria, anorexia, ruminal atony, dullness, weakness, increased heart rate and pale mucous membranes. In few cases, jaundice, dyspnoea, anaemia, reduced milk yield and reluctance to move were observed and were similar to the observations of Bikane *et al.*, (2001), Tufani *et al.*, (2009). All positive animals evidenced moderate to severe tick infestation and after processing they were identified as *Boophylus microplus* species.

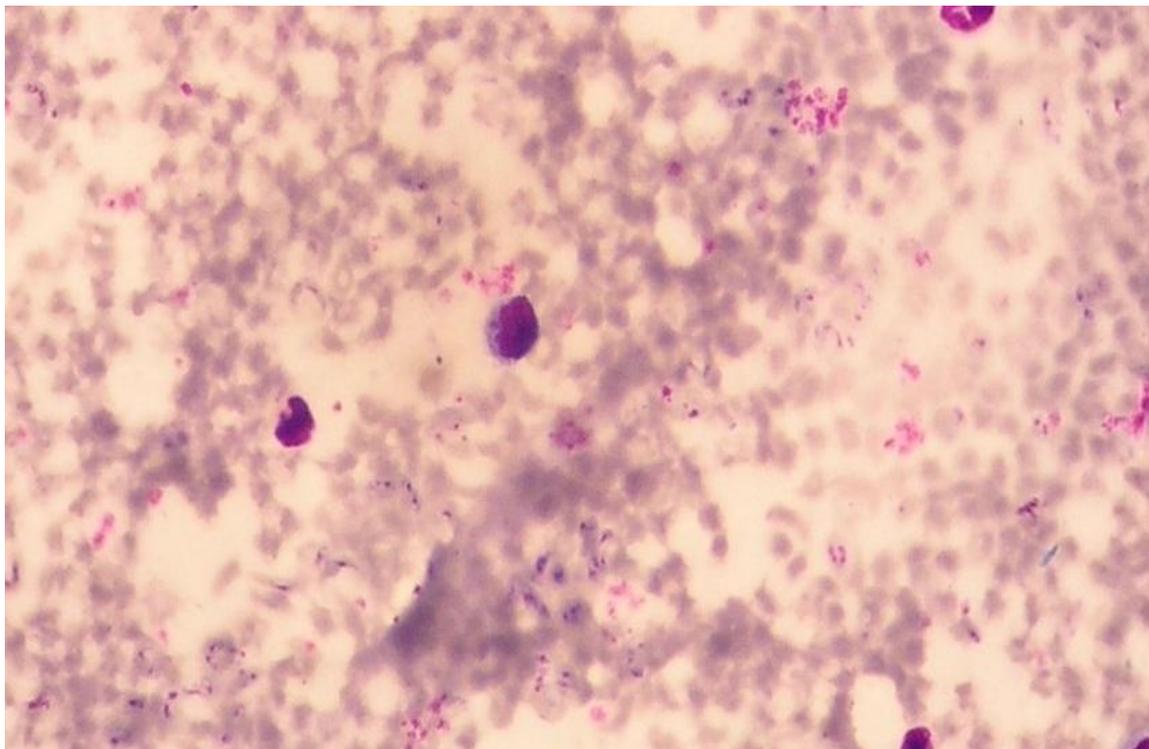


Figure 1: Blood smear showing different forms of Babesia organisms in red blood cells

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Haematological studies revealed marked anaemia comprising of reduced Hb%(6.15±0.81gm/dl) PCV(19.35±2.03%),TEC (4.12±0.17millions/cu mm), TLC (8.73±0.45thousands/c mm) and findings were in accordance with Aulakh *et al.*, (2005) and LakshmiRani *et al.*, (2010). Anaemia was possibly due to the destruction of RBC by emerging parasites, increased phagocytic activity of non infected erythrocytes by reticuloendothelial cells and suppression of erythropoiesis according to Dwivedi *et al.*, (1976), Ruprah *et al.*, (1985) and Pandey and Mishra (1987). The total leucocyte count was increased slightly exhibiting (43.78±6.83%) Neutrophils, (47.93±7.02%) lymphocytes, (1.96±0.72%) Monocytes and (2.0±0.37%) eosinophils. Leucocytosis associated with neutrophilia and lymphopenia were due to stress in acute babesiosis as per Bikane *et al.*, (2001). Out of 13 animals, two died within 24-48 hours following treatment because of severe anaemia. All affected animals were treated with single dose of Bernil @3.5mg/kg B.wt with supportive drugs comprised of Melonex @0.5mg/ kg B.wt at alternate days continuously for one week. D.N.S 20% was administered 10ml/ kg B.wt for first 3 days. To alleviate anaemia, Iron dextran injection (20%) 10ml (200mg/ml) by I/m on alternate days continuously for one week was administered. To improve appetite, Tefroli syrup was administered daily from the day of disappearance of clinical signs continuously for one week. Butox spray 2ml/lit water was sprayed immediately for complete removal of ticks from body coat. Remarkable clinical improvement was observed with single dose of Bernil after 72 hours of treatment with normal temperature, absence of haemoglobinuria, improved appetite and respiration rate and rumen motility. Similar line of treatment with successful recovery was appreciated by LakshmiRani *et al.*, (2010), Bikane *et al.*, (2001) and Wadhwa *et al.*, (2008). The complete recovery was noticed after 2 wks along with restoration of milk yield to its normal level.

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