

HAEMATOBIOCHEMICAL AND BLOOD GAS ANALYSIS OF LEPTOSPIROSIS IN DOGS

Manju K. Mathew, Usha Narayana Pillai, Anahita Anil Kumar and Thomas Edison D'Sa

Department of Clinical Veterinary Medicine, College of Veterinary and Animal Sciences, Mannuthy, Thrissur – 680651.

Introduction

Leptospirosis is a zoonotic disease of worldwide significance affecting various species of animals. The present study was conducted to assess the changes in various haematobiochemical and blood gas parameters to adopt best therapeutic strategy to manage leptospirosis in dogs.

Materials and methods

Six dogs presented at University Veterinary Hospital, Mannuthy, Thrissur with clinical signs suggestive of leptospirosis including fever, anorexia, vomiting, dehydration, haematuria etc were selected for the present study. Detailed history was taken and the animals were subjected to thorough clinical examination. Blood in EDTA and sodium citrate and serum was collected for laboratory investigation.

Results

All the six cases were diagnosed as leptospirosis by dark field examination of blood collected in sodium citrate. Blood in EDTA was subjected to complete blood analysis using semiautomated blood analyser. Haematological studies revealed leucocytosis (16900/cmm), neutrophilia (83%) and thrombocytosis (1.65 lakh)

Biochemical studies showed increase in the level of creatinine (4.62 mg/dl), blood urea nitrogen (115mg/dl) and SGPT (112 U/l) with reduced A/G ratio (0.5:1)

Blood gas analysis was conducted using Epoc blood analyser and the results obtained were as follows. Blood pH:7.285, pCO₂: 32.05 mmHg, pO₂:31.49mmHg, HCO₃⁻:15.66 mmol/l, base deficit:8.6 mmol/l and blood lactate level: 3.2mmol/l respectively. Blood pH and bicarbonate level was decreased and base excess was elevated suggesting metabolic acidosis.

Treatment and Discussion

In the present study, cases were diagnosed by dark field microscopic

examination of the whole blood collected in sodium citrate which is a rapid and easy technique (Sharma and Kalawat, 2008). The cases were treated intravenous administration of Benzyl penicillin @ 40,000 IU/kg bodyweight BID for first five days and Doxycycline @ 10mg/kg bodyweight for next seven days.

Supportive therapy was based on haematological and blood gas analysis. Haematology mainly helped in tentative diagnosis whereas serum biochemistry was used to analyze the effect of disease on kidney and liver. Blood gas analysis helped in assessing acid base status of the animals. In the present study it was found that animals had metabolic acidosis and so isotonic fluid 0.9% normal saline was chosen and to this alkalinizer 7.5% sodium bicarbonate was added based on the base deficit value of individual animals. Amount of sodium bicarbonate added was calculated using the formula, calculated bicarbonate $\log \text{cHCO}_3^- = \text{pH} + \log \text{pCO}_2 - 7.608$. The treatment regimen adopted based on the blood gas analysis helped in the rapid recovery of diseased animals.

Kerala, like many other South Indian states is endemic to leptospirosis, the predominant serovars being Autumnalis and Australis (Ambily *et al.* 2013). The disease being zoonotic has global significance. Even though the disease causes high mortality rate, proper diagnosis at early stage and appropriate antibiotic and supportive therapy can bring back the animals to normal health.

References

- Ambily R, Mini M, Joseph S, Krishna SV, Abhinay G (2013) Canine leptospirosis – a seroprevalence study from Kerala, India, *Vet World* **6(1)**:42-44.
- Sharma, K.K. and Kalawat, U. (2008) Early diagnosis of leptospirosis by conventional methods: One-year prospective study, *Indian J of Pathology and microbiology* **51(2)**:209-211.
