

HEPATIC NON-FUNCTIONAL ENZYME PROFILE DURING LIVER DYSFUNCTION IN A LABRADOR DOG

T. Nagendra Reddy^{*1}, K. Jyothi² and G. Dilip Reddy³

^{*1}Assistant Professor & Corresponding author, Department of Veterinary Microbiology,
Assistant Professors, ²Department of Veterinary Gynaecology and Obstetrics,
³Dept of Pharmacology and Toxicology, College of Veterinary Science,
Proddatur, YSR Kadapa District, Andhra Pradesh- 516360

Abstract: A 4 year old Labrador dog was presented to the clinic with a complaint of distended abdomen, decreased appetite, vomiting, and weakness. Clinical examination revealed pyrexia, increased pulse rate, increased respiratory rate, ascitis, icteric conjunctival mucosa, epigastric pain and yellowish skin discoloration. Diagnosis was made based on hepatic non functional enzyme profile, complete blood picture and urinalysis. The dog was treated with antibiotics, diuretics, nutritional supplements and complete recovery recorded after 15 days.

Keywords: Labrador dog, Ascitis, Liver function tests, Urinalysis.

Introduction

Hepatic disorders are frequently diagnosed in dogs since last two decades [1]. Laboratory assessment is important in diagnosis of liver dysfunction because the clinical findings associated with these disorders are most of the times non-specific and misleading. In hepatic dysfunctions, hepatic cellular damage takes place that leads to leakage of enzymes especially SGOT(AST), SGPT (ALT) and ALP [2]. The elevation of these enzymes indicates the liver dysfunction [3]. In the present case correct and immediate diagnosis of liver dysfunction was done in a Labrador dog by the estimation of the SGOT, SGPT and ALP levels in serum for successful treatment.

Case history and clinical observations

A 4-year-old Labrador dog was presented to the clinic with the complaint of decreased appetite, vomiting, weakness and distended abdomen since 10 days. Clinical examination revealed pyrexia (104.0F), elevated pulse rate (88/min), respiration rate (28/min), ascites, icteric conjunctival mucous membranes, epigastric pain, yellowish urine, yellowish skin discoloration and weakness (Fig 1). Faeces, urine, blood and serum were collected for laboratory examination. No parasitic ova found in the faecal sample. Urinalysis revealed

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severe alkaline pH and ammonia odour. Complete blood picture revealed decreased haemoglobin (13.2 gm%), RBC count (4.4mil/cmm), platelet count 1,19000/cmm and PCV 39%, increased WBC count (13,700/cmm). The serum levels of SGOT (AST), SGPT (ALT) and ALP are elevated (Table 1). BUN and serum creatinine found within normal range. Based on above clinical and laboratory findings liver dysfunction was diagnosed.

Fig 1: Dog suffering from liver dysfunction showing ascitis, yellowish skin discoloration



Treatment and Discussion

The dog was treated with ceftriaxone at the rate of 10 mg/ kg B.wt. intra muscularly (i/m), Ondansetran 0.5 mg/ kg B.wt. intra venously (i/v), Frusemide 50mg orally once daily, Neurokind injection 2ml i/m, DNS 200 ml i/v for five days and Liv 52 syrup 4tsp twice daily orally for 10 days. Successful recovery of the dog observed after 15 days. Serum sample collected again for estimation of serum enzymes after antibiotic course and found good recovery (Table 1).

Table 1: Serum biochemical values before and after treatment in a Labrador dog suffering from liver dysfunction

Serum biochemistry	0th day (before treatment)	5 th day (after treatment)
Total Albumin (g/dl)	1.1	2.8
BUN (mg/dl)	13	15
Serum creatinine (mg/dl)	0.7	1.3
AST (IU/L)	673.5	180
ALT (IU/L)	1050	488
ALP (IU/L)	571	428
Total bilirubin (mg/dl)	5.6	1.9

In the present case elevated levels of SGPT, SGOT, ALP and total bilirubin in the serum indicates the liver dysfunction or liver damage. Increased levels of AST, ALT may be attributed to leakage of enzymes from hepatobiliary cells to blood due to damage to the liver cells [4] (Klaassen, 2001). The same findings observed by others [1]. Significant decrease in Haemoglobin, total erythrocyte count and PCV may be due to less erythropoietic activity of liver as a result of hepatic dysfunction. Chakrabarti [5] recorded same findings in liver dysfunction. Ascites indicates the chronic nature of the disease [6]. In the present case ascites indicates the chronic illness and the reasons for the ascites may be hypoproteinemia due to low production of protein in the liver owing to its damage. The decreased serum albumin levels indicating hypoproteinemia (2.8 g/dl as against normal values of 3.5–5.0 g/dl). Vomiting in the liver dysfunction also observed by Varshney and Hoque [7]. The renal cause for the ascites was ruled out by the serum biochemical values of BUN and creatinine. The urinalysis reported severe ammonia odour that may be due to the dysfunction of the liver in the conversion of toxic ammonia to urea [8]. High rectal temperature, increased pulse and respiratory rate indicate systemic infection or due to anaemia.

Conclusion

By the estimation of AST, ALT and ALP correct and early diagnosis of the liver dysfunction can be done in dogs

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