

Serum protein profiles and C-reactive protein in natural canine filariasis

Key Words : C-reactive protein, *Dirofilaria immitis*, dogs, serum protein, Vcheck

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Introduction

Canine filariasis is a prominent mosquito-borne disease which is caused by several species of filarial worms, including *Dirofilaria immitis*. The pathophysiological response to infection is mainly due to the filaria lifecycle. New laboratory detection methods to assess the pathological alterations characteristic of filariasis are needed urgently.

Purpose

Serum protein profiles and C-reactive protein (CRP) are used widely to diagnose several animal diseases. The aim of this study was to determine and to compare the serum protein profiles and CRP level in dogs infected with *D. immitis* or *Brugia pahangi*.

Materials and Methods

Blood samples were collected from 980 dogs presenting at animal hospitals and veterinary clinics. All samples were tested to determine the presence of microfilaria using buffy coat blood smears and staining with Wright–Giemsa. In positive samples, proteins were separated by agarose gel electrophoresis to examine the serum protein profiles and CRP concentrations were determined using the Vcheck CRP assay (Bionote).

Results

In canine filariasis, albumin levels and A/G ratios were significantly low, and total protein, β 2 globulin, and γ globulin levels were significantly elevated. The average CRP concentrations in dogs infected with *D. immitis* or *B. pahangi* were 69.6 (13.6-116.9) and 12.9 (< 10-31) mg/L, respectively (n=6, both). The CRP concentration in the dog infected with both parasites was > 200 mg/L (n=1).

Conclusion

The serum protein profiles and CRP concentrations in canine filariasis can reflect the health status of infected dogs. The CRP assay can be used as a useful marker in dogs infected with *D. immitis*, as it is elevated because of the inflammation involved in the pathogenesis.

Table 1. Serum protein concentrations in canine filariasis

Variable (g/dL)	<i>D. immitis</i> positive (mean±SD, n=24)	<i>B. pahangi</i> positive (mean±SD, n=15)	Reference range
Total protein	9.22 ± 2.40	8.50 ± 1.75	5.40 ~ 7.10
Albumin	2.07 ± 0.70	2.28 ± 0.50	2.60 ~ 3.30
Alpha-1	0.34 ± 0.17	0.43 ± 0.18	0.20 ~ 0.50
Alpha-2	0.66 ± 0.55	0.52 ± 0.45	0.30 ~ 1.10
Beta-1	1.15 ± 0.53	0.87 ± 0.46	0.70 ~ 1.30
Beta-2	2.23 ± 1.02	1.79 ± 0.06	0.60 ~ 1.40
Gamma	2.77 ± 1.84	2.63 ± 1.17	0.90 ~ 2.20
A/G ratio	0.33 ± 0.12	0.41 ± 0.15	0.59 ~ 1.11

Figure 1-2. The serum protein concentrations and electrophoretogram in dogs infected with *D. immitis*.

