ASSOCIATION OF TICK-BORNE CO-INFECTIONS WITH SEVERITY OF CANINE VISCERAL LEISHMANIOSIS IN DOGS FROM NORTHEASTERN ARGENTINA

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1 Background

Canine Visceral Leishmaniosis (CVL) is an endemic parasitic disease in Northeastern Argentina. This region is also known to be endemic for tick-borne parasitic diseases, particularly those transmitted by the tick vector Rhipicephalus sanguineus, such as Ehrlichia canis, Anaplasma platys, and Babesia vogeli. The objective of this retrospective study was to assess the relationship between seropositive results to tick-borne pathogens and the severity of CVL in a canine patient population for which the full medical history was available.

2 Methods

Serum samples were collected from 112 dogs between 2009 and 2016. Seventy-eight (78) samples were obtained from dogs diagnosed with CVL based on cytology and/or PCR, categorized as symptomatic (n=45) or asymptomatic (n=33), and staged according to LeishVet guidelines. An additional 34 samples were collected from asymptomatic dogs with no evidence of Leishmania infection to serve as a control sampling of the common population. All samples were tested by genus-specific Enzyme-Linked Immunosorbent Assays (ELISA) for Leishmania, Ehrlichia spp, Anaplasma spp, and Babesia spp. The ELISA seropositive rates for each clinical group were calculated and Chi square tests were performed to identify statistically significant differences between groups.

3 Results

Leishmania seropositive rates were 76% in the CVL group and 14% in the control group. In addition, seropositive rates for Ehrlichia spp., Anaplasma spp., and Babesia spp. were 13%, 23%, and 14% for the CVL group and 6%, 20%, and 6% for the control group. The frequencies of dogs testing positive to Leishmania and at least one tick-borne pathogen were 0%, 32%, and 43% for the control group, asymptomatic CVL group, and symptomatic CVL group, respectively. A statistically significant difference was observed in seropositive rates for Ehrlichia spp. between symptomatic and asymptomatic CVL groups (20% vs 3%, P=0.0274).

4 Conclusions

These results suggest that co-infection with tick-borne pathogens such as Ehrlichia canis may play a role in the clinical progression of CVL. Prospective studies are needed to further understand this apparent relationship and the associated immunopathology involved.