PREVALENCE AND GEOGRAPHIC DISTRIBUTION OF B. CONRADAE IN CALIFORNIA COYOTES (Canis latrans)

INTRODUCTION

Babesia conradae is an intraerythrocytic piroplasm causing disease characterized by a severe hemolytic anemia and thrombocytopenia in domestic dogs which can be fatal without treatment [1,2]. Very little is known about the mechanism of transmission in coyotes. This study demonstrates that coyotes can become infected and harbor B. conradae. This study was supported by the Judith McBean Foundation and the Student Training in Advanced Research (STAR) Program.

METHODS

In total, 22 coyotes tested positive for B. conradae. DNA was extracted from tissue samples and real-time PCR of B. conradae ITS-2 gene was performed. Samples were considered positive when they tested positive in both real-time PCR and melting curve analysis. The number of coyotes, the percentage of infection, and the number of coyotes infected per county were reported. In addition, coyotes were grouped into urbanity classifications, age classes, and cause of death categories to analyze if there were differences in infection prevalence between these groups. The chi-square test was used to compare infection prevalence between these groups.

RESULTS

Prevalence and geographic distribution of B. conradae in California coyotes (Canis latrans)

DISCUSSION AND ACKNOWLEDGEMENTS

The results of this study show that coyotes can become infected with B. conradae and should be considered a potential source of infection for domestic dogs. Further avenues for research include investigating antibody seroprevalence and transplacental mechanisms of transmission are warranted.

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REFERENCES


4. In total, 22 coyotes tested positive for B. conradae. Absolute number of coyotes are labeled on the bar plot. Age class was not a predictor of infection with B. conradae.

5. The proportion of coyotes infected was significantly different between urbanity classifications (P<.0001). Coyotes from Fresno (p<.0001) and rural coyotes (p<.0001) were significantly more likely to be infected compared to urban and suburban locations (5.2%).

6. The proportion of coyotes infected was significantly different between urbanity classifications (P<.0001). Coyotes from Fresno (n=15), Irvine (n=3), Newport Beach (n=1), Apple Valley (n=1), and San Bernardino (n=1) were significantly more likely to be infected compared to urban and suburban locations (5.2%).

7. Figure 2: Distribution of coyotes (Canis latrans) in California (379 total number; 82.6%), Fresno (47 total number; 10.8%), Hopland (11 total number; 2.4%), and 24 without recorded locations (5.2%).

8. Figure 3: Figure 2: Distribution of coyotes (Canis latrans) in California (379 total number; 82.6%), Fresno (47 total number; 10.8%), Hopland (11 total number; 2.4%), and 24 without recorded locations (5.2%).

9. The proportion of coyotes infected was significantly different between urbanity classifications (P<.0001). Coyotes from Fresno (n=15), Orange (n=4), San Bernardino (n=1), and Los Angeles counties (n=1) with an overall prevalence of 4.7%.

10. DNA was extracted from samples and amplified using real-time PCR with primers specific for the B. conradae ITS-2 gene. Samples were considered positive when they tested positive in both real-time PCR and melting curve analysis.

11. The proportion of B. conradae positivity between coyotes that were euthanized and those who were suspected to have died from vehicular strike. Absolute number of coyotes are labeled on the bar plot. Cause of death was not a predictor of infection with B. conradae.

12. The proportion of B. conradae positivity between coyotes that were euthanized and those who were suspected to have died from vehicular strike. Absolute number of coyotes are labeled on the bar plot. Age class was not a predictor of infection with B. conradae.

13. The proportion of B. conradae positivity between coyotes that were euthanized and those who were suspected to have died from vehicular strike. Absolute number of coyotes are labeled on the bar plot. The proportion of coyotes infected was significantly different between urbanity classifications (P<.0001). Coyotes from Fresno (n=15), Irvine (n=3), Newport Beach (n=1), Apple Valley (n=1), and San Bernardino (n=1) were significantly more likely to be infected compared to urban and suburban locations (5.2%).

14. Coyotes can become infected and harbor B. conradae. This study demonstrates that coyotes can become infected and harbor B. conradae. This study was supported by the Judith McBean Foundation and the Student Training in Advanced Research (STAR) Program.

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