

Lyme Disease: Canine–Human Connection



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In this study of Lyme disease, data on canine seroprevalence of *Borrelia burgdorferi*

from a 2009 study¹ ($n = 982,336$ dogs) were compared with Lyme disease data reported to the Centers for Disease Control and Prevention by state and territorial health departments. Detailed canine data suitable for comparison and analysis were available from 46 states; the investigators compared state and county data between dogs and humans. Analysis revealed that a canine seroprevalence of $>5\%$ was associated with above-average incidence of human Lyme disease. At the county level, however, only 85% of counties with a canine seroprevalence level $>5\%$ had an increased human Lyme disease incidence. In half of these counties, the incidence increased to above average in the following 3 years, suggesting some predictive potential for canine seroprevalence. Counties with high canine seroprevalence but low incidence of human Lyme disease may have been anomalies resulting from small sample sizes and local demographics. For instance, a subsequent investigation in one county revealed that 11 of 12 seropositive dogs had lived in or traveled to Lyme disease–endemic areas. Thus, testing of dogs with exposure histories may provide misleading results. When the seroprevalence in dogs was $\leq 1\%$, rates of human illness at the state and county level were extremely low.

Commentary

Findings from this article suggest that dogs may serve as a sentinel species for Lyme disease risk in humans. It is important to realize that the true seroprevalence of *B burgdorferi* antibodies in dogs is not known because most dogs are asymptomatic despite exposure; thus, many exposed dogs may not be tested. Similarly, in regions where *B burgdorferi* is uncommon, testing a dog for exposure may not be considered, which leads to exclusion of exposed dogs from those regions. These data must be interpreted with caution, and preventive measures should be taken in all regions to prevent tick exposure to both humans and dogs.—Jennifer Ginn, DVM, MS, DACVIM

Source

Canine serology as adjunct to human Lyme disease surveillance. Mead P, Goel R, Kugeler K. *EMERG INFECT DIS* 17:1710–1712, 2011.

1. Prevalence and geographic distribution of *Dirofilaria immitis*, *Borrelia burgdorferi*, *Ehrlichia canis* and *Anaplasma phagocytophilum* in dogs in the United States: Results of a national clinic-based serologic survey. Bowman D, Little SE, Lorentzen L, et al. *Vet Parasitol* 160:138–148, 2009.

Feline Conjunctivitis: Unlikely Pathogens?



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Chlamydia and feline herpesvirus 1 are commonly associated with feline conjunctivitis, a frequent

ophthalmologic disease in cats. *Chlamydophila felis* was initially the only recognized chlamydial pathogen in cats, but more species have since been identified. The purpose of this study was to determine the pathogenic role of these organisms as well as the role of the human pathogen, *C pneumoniae*, in feline conjunctivitis. Forty-nine cats with conjunctivitis and 25 cats without signs of eye or upper respiratory disease were included. Three conjunctival swabs were collected from each eye of cats with conjunctivitis and from one eye in each control cat; 2 were submitted for culture and 1 submitted for 2 different PCR tests. One test, a Chlamydiaceae real-time (RT)-PCR, targeted the *23S rRna* gene sequence; the other was a Chlamydiales-specific PCR targeting the *16S rRNA* gene sequence. *C pneumoniae* was identified in 5 cats (6 eyes) in the conjunctivitis group by RT-PCR and subsequent sequence analyses. *C felis* was identified in 1 eye of 2 different cats with conjunctivitis by RT-PCR. *Chlamydia* spp related to an uncultured member of the Chlamydiales order was detected in 3 cats. The cats with *C pneumoniae* were older than 2 years of age, which is in contrast to the age of *C felis*-infected cats described in the literature (5 weeks–9 months). *C pneumoniae* is a potential pathogen in cats as well as a potential zoonotic risk.

Commentary

C pneumoniae is a well-known pathogen in humans, causing pneumonia as well as being associated with atherosclerosis and acute and chronic respiratory tract disease. The Chlamydiaceae family of organisms includes intracellular pathogens that cause disease in a range of animal species. In general, they are species specific, but this article suggests that both cats and humans can be infected. Although it may be rare, this serves as a good reminder of the importance of simple control measures, such as hand washing and isolation of sick cats.—Patricia Thomblison, DVM, MS

Source

Detection of *Chlamydophila pneumoniae* in cats with conjunctivitis. Sibitz C, Rudnay EC, Wabnegger L, et al. *VET OPHTHALMOL* 14:67–74, 2011.

CONTINUES

Spot-on Flea Prevention



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This study was conducted to examine the efficacy of two topical spot-on flea preventives on naturally infested animals. Pets were divided into 2 groups. In the DP-DPP group, 13 cats were treated with dinotefuran-pyriproxyfen (Vectra for Cats and Kittens, summitvetpharm.com) and 7 dogs were treated with dinotefuran-pyriproxyfen-permethrin (Vectra 3D, summitvetpharm.com). The FM group consisted of 20 cats and 7 dogs treated with fipronil-(S)-methoprene (Frontline Plus, merial.com). Each animal was treated at the start of the study and again 28 days later.

Flea populations were assessed on pets by visual count and in the indoor environment by use of intermittent light traps. Within 1 week of the first treatment, flea infestations on the animals were reduced by 87.35% in the DP-DPP group and by 88.44% in the FM group; after 2 applications, flea counts on pets were reduced by 95.24% and 95.47% in the DP-DPP and FM groups, respectively. At the end of the 60-day study, infestation in the homes was reduced by 98.05% and 96.15% in the DP-DPP and FM groups, respectively. All fleas caught in the homes were identified as cat fleas.

Commentary

This research represents the first field study of the efficacy of Vectra products since their release in 2008. Efficacy of all products (both Vectra and Frontline) was sustained despite continual reinfestation pressure caused by new adult fleas reaching the animals. Nearly all pet owners in this study (90%) also reported pet encounters with raccoons, opossums, and feral cats on their property during the study period, all of which could likely have been carrying fleas. This research confirms, yet again, the efficacy of flea prophylaxis and recommends maintaining pets on year-round treatment protocols.—*Carly Jordan, PhD*

Source

Efficacy of dinotefuran-pyriproxyfen, dinotefuran-pyriproxyfen-permethrin and fipronil-(S)-methoprene topical spot-on formulations to control flea populations in naturally infested pets and private residences in Tampa, FL. Dryden MW, Payne PA, Vicki S, et al. *VET PARASITOL* 182:281-286, 2011.

Compounds: Natural Anthelmintics for Veterinary Use?

Research Note

Researchers have optimized a drug-screening system using the abundant, hardy, free-living nematode *Caenorhabditis elegans* as a model for parasitic nematodes, which can be difficult to maintain in culture. The screens can be conducted in liquid media using water or saline as a solvent for potential anthelmintic compounds. Researchers will use this system to examine plant extracts for activity against *C. elegans* in hopes of extending results to parasitic nematodes as well.

Source

Caenorhabditis elegans as a model to screen plant extracts and compounds as natural anthelmintics for veterinary use. Katiki LM, Ferreira JFS, Zajac AM, et al. *VET PARASITOL* 182:264-268, 2011.



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