Serological evidence of leptospira exposure in vaccinated client owned dogs and dog owner awareness on leptospirosis in Sri Lanka

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Introduction and Objectives: Leptospirosis is a major zoonotic disease in tropical countries like Sri Lanka due to environmental, socioeconomic, and occupational factors facilitating transmission. While rodents are primary reservoirs, dogs may also play a significant role in transmission, as they may shed leptospires in urine even after vaccination. In Sri Lanka, gaps remain in awareness, diagnosis, and surveillance of canine leptospirosis. This study aimed to assess exposure in fully vaccinated, client-owned dogs, isolate *Leptospira* spp. from urine, and evaluate dog owners' knowledge, attitudes, and practices (KAP) regarding leptospirosis.

Methods: Eighteen urine samples were collected from fully vaccinated client owned dogs. Serum samples were also collected from 15 of those 18 dogs. A structured, interviewer-administered KAP questionnaire was administered to the owners of 10 of those 15 dogs from which both urine and serum were collected. The same questionnaire was administered to an additional 32 dog owners, without collecting any samples.

The Microscopic Agglutination Test (MAT) was performed on serum samples to detect anti-leptospiral antibodies. Urine samples were filtered using 0.22 µm filters and cultured in Ellinghausen-McCullough-Johnson-Harris medium. The data was analysed using ANOVA in IBM SPSS version 23.

Results: MAT identified Grippotyphosa, Icterohaemorrhagiae, and Sejroe as the most common sero-groups (3/15 each), followed by Autumnalis (2/15), Canicola, Hardjo, Shermani, and Javanica (1/15 each). *Leptospira* spp. could not be isolated from urine. KAP analysis (n=42) showed a moderate knowledge score (Mean=71.27%; SD=12.49), indicating moderate awareness. While 98% recognised rats as reservoirs, only 50% identified dogs as reservoirs. Mean attitude score was 72.01% (SD = 17.15). No significant differences in knowledge or attitude were found by gender, education, religion, ethnicity, or income of participants. Sample size was a major limitation.

Conclusion: Fully vaccinated dogs showed exposure to *Leptospira* spp. Further studies are needed to assess renal colonisation and shedding. The KAP survey showed that there is a critical knowledge gap regarding the role of dogs in *Leptospira* transmission, although general awareness of leptospirosis is satisfactory. Public awareness programs involving veterinary and medical professionals are essential to address this knowledge gap.

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