

Point-of-Care Testing for Leptospirosis

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In the Literature

Troia R, Balboni A, Zamagni S, et al. Prospective evaluation of rapid point-of-care tests for the diagnosis of acute leptospirosis in dogs. *Vet J*. 2018;237:37-42.

FROM THE PAGE ...

Leptospirosis is an important disease differential in dogs with systemic illness, but testing for this potentially fatal, zoonotic disease is difficult, as no test is consistently 100% sensitive (ie, no false-negative results) or 100% specific (ie, no false-positive results).

Diagnostic laboratories offer quantitative tests for leptospiral antibodies (serovar titers by microscopic agglutination testing [MAT]) and antigens (conventional PCR or real-time quantitative PCR [qPCR] tests of blood and urine) for disease diagnosis. More recently, rapid, in-house, point-of-care immunodiagnostic tests for detection of immunoglobulin M and/or immunoglobulin G have become available to clinicians.^{1,2}

This study evaluated and compared 2 in-house tests for diagnosis of acute leptospirosis in dogs. Dogs with suspected acute leptospirosis ($n = 89$) were tested, and results were compared with a clinical diagnosis based on MAT and/or qPCR. Classification of 42 dogs with confirmed leptospirosis was based on a single high MAT titer on admission ($n = 32$), a 4-fold increase in convalescent MAT ($n = 4$) results, and/or a positive blood ($n = 5$) and/or urine qPCR ($n = 5$) result. These results suggest differing duration of infection in these clinical cases.

Evaluation of the point-of-care antibody tests compared with this classification indicated both tests to be comparable with and possibly more sensitive than MAT. Comparison of calculated sensitivity, specificity, and accuracy is difficult due to the

variety of clinical cases, duration of illness, and criteria used to classify cases as confirmed. Nevertheless, in-house tests that detect immunoglobulin M may signal increased titers a few days earlier than immunoglobulin G-based tests.³

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Sensitivity and specificity of different leptospirosis tests in dogs vary by time since infection, so the time since onset of clinical signs should be considered when selecting tests.
- 2** Due to <100% sensitivity for all available tests, a negative test result does not rule out disease in acute illness.
- 3** Because interpretation of in-house serologic tests in properly vaccinated (4-serovar) dogs is difficult, PCR testing is recommended if vaccine failure is suspected.

References

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2. Lizer J, Grahlmann M, Hapke H, Velineni S, Lin D, Kohn B. Evaluation of a rapid IgM detection test for diagnosis of acute leptospirosis in dogs. *Vet Rec*. 2017;180(21):517.
3. Lizer J, Velineni S, Weber A, Krecic M, Meeus P. Evaluation of 3 serological tests for early detection of *Leptospira*-specific antibodies in experimentally infected dogs. *J Vet Intern Med*. 2018;32(1):201-207.