FOCUS A Battle of Tests

Anaplasma phagocytophilum is a common tick-borne illness in dogs. Conventional diagnostic methods include antibody measurement via immunofluorescence assay (IFA) or ELISA, and antigen detection via polymerase chain reaction (PCR). This study sought to determine the relative specificity and sensitivity of IFA and the ELISA SNAP4Dx (idexx.com) test vs PCR. Blood samples from 200 client-owned dogs were collected and assays performed using standard procedures and/or manufacturer's instructions. An IFA titer ≥1:40 was considered positive. Four dogs were positive on PCR and considered infected. Antibody tests for these dogs were also positive, which indicated an excellent sensitivity of 100% for IFA and SNAP4Dx. However, the specificity of the antibody tests as compared with PCR was low, with specificity of IFA and SNAP4Dx at 52.9% and 57.4%, respectively. Reasons for low specificity might include cross-reactions with antibodies to other related pathogens or previous exposure. Sensitivity of PCR can be problematic, as bacteremia can potentially fluctuate, yielding false-negative results with active infection. Only fair agreement was found between the IFA and SNAP4Dx tests. Cases in which IFA titers were low-positive and SNAP4Dx was negative might indicate cross-reactivity, subjectivity in interpreting IFA, lack of standardization, very early infection, or a higher cut-off value for the SNAP4Dx. A major study limitation was its prospective, in-clinic design, which lacked well-defined positive and negative controls. The authors conclude that IFA and SNAP4Dx are excellent screening tests useful for ruling out anaplasmosis.

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Commentary

A phagocytophilum is prevalent worldwide and is the causative agent of canine granulocytic anaplasmosis. A commonly utilized screening tool for the disease is the SNAP4Dx test. This test and the IFA test detect the presence of antibodies in blood. They are quite sensitive for detecting whether an immune response has previously been mounted but may not accurately diagnose an early or active infection when antibodies have yet to form. PCR detects DNA from the organism and thus more accurately detects true infections. However, PCR may not detect all active infections, or a positive result might occur without clinical disease. For clinical confirmation, a positive test result with the appropriate concurrent clinical signs is most desirable.[1]—*Johanna Rigas, MS, DVM, DACVP*

Source

Comparison of different diagnostic tools for the detection of *Anaplasma phagocytophilum* in dogs. Barth C, Straubinger RK, Müller E, et al. *VET CLIN PATHOL* 43:180–184, 2014.

1. **Canine granulocytic anaplasmosis: A review.** Carrade DD, Foley JE, Borjesson DL, Sykes JE. *JVIM* 23:1129–1141, 2009.

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