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TBEV in dogs –human behavior leading to an increased infection risk?

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Tick-borne encephalitis virus (TBEV) is a zoonotic flavivirus of growing concern within the One Health framework, as its transmission cycle intricately links wildlife, domestic animals, vectors, and human populations. Its circulation is highly focal, depending on competent tick vectors and reservoir hosts in defined natural foci that can remain stable over decades.
In this study, residual serum samples from routine diagnostics were used to investigate TBEV exposure in two canine populations: dogs from an animal shelter located near a well-known TBEV focus active for over 30 years, and a control group from a veterinary clinic without known TBEV exposure. Shelter dogs are regularly walked along routes intersecting the endemic focus, implying increased exposure risk.
So far, 34 samples from shelter dogs and 38 from the clinic have been screened by TBEV-specific RT-qPCR, yielding six positive results, including two from the shelter group. To assess past exposure, ELISA and virus neutralization tests were performed, with seropositive individuals in both populations. Additionally, ticks collected along the shelter's walking routes tested positive for TBEV RNA, confirming local virus circulation. These results demonstrate that dogs can serve as valuable sentinels for detecting active TBEV circulation and past exposure. The integration of animal surveillance, vector monitoring, and environmental context illustrates the necessity of a One Health approach to mitigating arboviral risks.

Keywords

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Professional Status of the Speaker

Senior Scientist

Junior Scientist Status

No, I am not a Junior Scientist.

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