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Tick-borne diseases: Search for TBE virus and related pathogens in Norway

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TBEV (Tick-borne encephalitis virus) and *Borrelia burgdorferi* sensu lato are among the most important pathogens causing vector-borne diseases that are emerging. They are the main infections transmitted by *Ixodes ricinus* ticks in Europe. *I. ricinus* is known to transmit other pathogenic microorganisms as louping ill virus, *Anaplasma phagocytophilum* and endosymbionts like *Wolbachia pipientis* and *Midichloria mitochondrii* that may have an influence of the pathogenesis in humans and animals. Factors like climate change, human behavior and migrating animals are involved in the distribution of diseases. The main route of TBEV transmission is through tick bites, but there is also evidence of infection of TBEV through alimentary system by consumption of unpasteurized dairy products. The knowledge of natural foci and prevalence of these infectious microorganisms is important for risk assessment of human disease. Wild and production animals can be used as sentinels for transmission. Preliminary results from nymph and adult ticks collected in Norway were analyzed for TBEV, LIV, *B. burgdorferis* L., *A. phagocytophilum, W. pipientis, M. mitochondrii*. A subset of these ticks was analyzed for co-infections. Sera from host animals are valuable epidemiological parameters for TBEV like cow milk and serum from sheep, cows and deer to verify what is circulating in the tick areas. The combination of these data may help us to give better advices concerning risk and vaccine recommendations to the general public and health authorities.

Biography

Ashild K Andreassen has completed her PhD from University of Oslo and Postdoctoral studies from Norwegian Institute of Public Health. She is a Senior Scientist at Department of Virology, Norwegian Institute of Public Health. She has published more than 25 papers in reputed journals in molecular studies of cancer genes, toxicology, reproduction and virology.

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