Powassan virus — an emerging public health concern

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1 A flu-like illness during the summer suggests a possible mosquito- or tick-borne infection

Investigation of a summertime flu-like illness is warranted. Well-known pathogens include Lyme disease, anaplasma and West Nile virus. A lesser-known pathogen is Powassan virus (POWV).

2 POWV is emerging as an important pathogen in some provinces owing to rapid spread of its vector

Powassan virus is transmitted by the blacklegged tick *Ixodes scapularis*.[1] Ticks harbouring POWV have been detected in Nova Scotia, Ontario and Manitoba, with expansion of the tick across eastern and central Canada (Field Studies section, Zoonotic Diseases and Special Pathogens, National Microbiology Laboratory, Public Health Agency of Canada: unpublished data, 2017). This suggests a risk for increased transmission of POWV, especially in individuals who engage in outdoor work or recreational activities.[2] Current rates of disease are not well documented, which may reflect underinvestigation.

3 POWV can cause severe disease of the central nervous system

The incubation period for POWV infection is one to five weeks and most cases remain asymptomatic. Manifestations of the illness include fever and flu-like symptoms, and, more uncommonly, meningoencephalitis, with findings of meningismus, altered mental status, seizures or cranial nerve palsies. Mortality is estimated at 5% to 10% in severe cases with neurologic involvement, and neurologic sequelae are common.[3]

4 Serology is the principal diagnostic test for POWV

Serology testing should be requested for patients with compatible symptoms and risk factors for tick exposure. Serology is offered at the National Microbiology Laboratory through provincial public health laboratories. Acute serologic samples are examined for POWV-specific immunoglobulin M in serum or cerebrospinal fluid, which usually provides a positive result two to three days after symptom onset. A positive result for immunoglobulin G in serum is diagnostic if it shows seroconversion or a substantial rise in antibody titres in convalescent samples drawn two to three weeks later (Field Studies section, Zoonotic Diseases and Special Pathogens, National Microbiology Laboratory, Public Health Agency of Canada: unpublished data, 2017).

5 Prevention of tick bites is the best defense

There are no specific treatments or vaccines for POWV. Important measures to prevent tick bites include wearing protective clothing, using *N*,*N*-diethyl-*m*-toluamide (DEET) insect repellent, and performing thorough checks after outdoor activities and promptly removing ticks.[4]

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