



2013-07-26-056 Heartland virus - USA: (MO)

To: (06) Virology, general; (12) Scientific Information, research and education;

HEARTLAND VIRUS - USA: (MISSOURI)

A ProMED-mail post

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<<http://www.webmd.com/skin-problems-and-treatments/news/20130722/midwest-ticks-show-signs-of-heartland-virus>>

While a type of tickborne disease known as Heartland virus appears to be extremely rare -- only two cases in humans have been reported so far -- a new study finds it is lurking in ticks in north western Missouri.

The researchers haven't issued anything other than the usual warnings about avoiding contact with ticks that may harbor disease. Still, "there's another tickborne pathogen out there to be careful of," said study author Harry Savage, a medical entomologist with the US Centers for Disease Control and Prevention. Heartland virus is indeed rare, he said, but reports on it may be spotty because a test for it is not readily available.

Lyme disease is the most well-known infection spread by ticks, but there are several others. The infection known as Heartland virus -- so named because it was discovered in the middle of the country [the United States] -- is unusual because it's spread by a virus, not a bacterium.

In 2009, two farmers from north western Missouri were diagnosed with the illness after coming into contact with ticks. The virus causes "fever, headaches, mild diarrhea and low white blood [cell] counts," Savage said. Both of the men were hospitalized with severe illness but recovered.

Last year [2012], researchers fanned out across north western Missouri -- to the north and north west of Kansas City -- and gathered 56 428 ticks at 12 locations, including the farms of the infected men. The ticks were caught in the wild and taken off horses and dogs.

The researchers report that they found the virus in a species known as the lone star tick. The infection rate was about one in 500 ticks, Savage said. It appears that the ticks become infected at the larval stage when they bite an animal that harbors the virus. When the ticks reach the nymph stage they look for blood meals from, say, humans, Savage added.

Investigators identified the 1st cases with the help of CDC. Now, Savage said, researchers are working on a test to identify the virus in infected people. It's not clear how helpful a test will be, however, because the disease comes from a virus; antibiotics can't be used to treat it.

Is the virus -- which Savage said may have lurked around for thousands of years -- concerning? That's also not clear, said another expert who studies infectious disease. "If these 2 cases represent the severe end, then there may be many other milder cases that are going undiagnosed," said Dr Lucas Blanton, an instructor at University of Texas Medical Branch at Galveston. "Until more patients are studied, I do not think we know the full implications of this virus."

Blanton said physicians should consider possible infection with Heartland virus if the tickborne disease it mimics -- ehrlichiosis -- fails to improve when antibiotics are given.

The public, meanwhile, should continue to recognize the risk of ticks and rely on protective clothing, insect repellents and checking their skin for signs of ticks, he said. In addition, CDC recommends showering soon after going outdoors, removing attached ticks from the body with tweezers, and calling a doctor if illness develops after a tick bite.

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communicated by:
ProMED-mail rapporteur Kunihiko Iizuka

[It is good to see that follow-up field studies were done to determine which ticks might be Heartland virus vectors in the area in which the human virus infections were acquired. Although the risk of infection for humans appears to be quite low, the caution about avoidance of tick bites is prudent. One hopes that the findings in the ticks will be followed by additional field studies to determine whether domestic and wild animals are involved in maintenance or amplification of the virus. The only other tickborne phlebovirus known to cause disease in humans is called SFTSV -- severe fever with thrombocytopenia syndrome virus -- which was recently identified in central and north eastern China.

The above report was based on the following published report:

Reference

HM Savage, MS Godsey jr, A Lambert, NA Panella, KL Burkhalter, JR Harmon, et al. First detection of Heartland virus (Bunyaviridae: Phlebovirus) from field collected arthropods. Amer J Trop Med Hyg. 2013; 13-0209 doi: 10.4269/ajtmh.13-0209.

Abstract:

Heartland virus (HRTV), the 1st pathogenic Phlebovirus (Family:Bunyaviridae) discovered in the United States, was recently described from 2 Missouri farmers. In 2012, we collected 56 428 ticks representing 3 species at 12 sites, including both patients' farms. *Amblyomma americanum* and *Dermacentor variabilis* accounted for nearly all ticks collected. Ten pools composed of deplete nymphs of *A. americanum* collected at a patient farm and a nearby conservation area were reverse transcription-polymerase chain reaction positive, and 8 pools yielded viable viruses. Sequence data from the nonstructural protein of the small segment indicates that tick strains and human strains are very similar, 97.6 per cent or more sequence identity. This is the 1st study to isolate HRTV from field-collected arthropods and to implicate ticks as potential vectors. *Amblyomma americanum* likely becomes infected by feeding on viremic hosts during the larval stage, and transmission to humans occurs during the spring and early summer when nymphs are abundant and actively seeking hosts.

ProMED-mail thanks Kunihiko Iizuka for sending in this report.

A HealthMap/ProMED-mail map showing the location of Missouri in the central USA can be accessed at: <<http://healthmap.org/r/1jUt>>. - Mod.TY]

[see also:
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