



Hot Tips

A Service of Ventura County Public Health Department

BARRY FISHER MPPA, Director

ROBERT M. LEVIN, M.D., Health Officer
Hot Tips Number # 58 Date 08/21/2012

Please copy and distribute to ALL physicians at your location.

Alert: West Nile Virus

Ventura County

The first human case reported in Ventura County since the summer of 2007 was confirmed by California Department of Public Health (CDPH) last week. A woman in her early 50's suffered mosquito bites at her East County home. Approximately 1 week later she experienced flu-like symptoms and subsequently developed WNV neuroinvasive disease. She was hospitalized with meningitis for a few days and has since been released from the hospital and continues to recover at home.

Definition

West Nile Virus was first detected in the United States in 1999 with encephalitis reported in humans and horses. The first human case was reported in California in 2002. To date in 2012, there have been 26 human cases in 10 counties reported in California.

Epidemiology

Transmission of West Nile Virus to humans occurs with the bite of an infected mosquito. During periods of continuous transmission between mosquito vectors and bird reservoir hosts, the West Nile Virus is amplified and breaks out into the human population. However, only certain species of mosquitoes can carry the virus. Even in areas where the virus is circulating, very few mosquitoes are infected. When a mosquito is infected, less than 1% of those who are bitten will become severely ill. There is no documented evidence of person-to-person (except via blood transfusion) or animal-to-person transmission of WNV. There is no evidence that a person can get WNV from handling live or dead infected birds, though bare-handed contact should be avoided when handling any dead animal. WNV is not contracted from touching or kissing someone with the illness, nor from a health care worker who has treated someone with WNV.

Microbiology

West Nile Virus is a Flavivirus, a single stranded RNA virus. The genus Flavivirus also includes St. Louis encephalitis, Japanese encephalitis and others.

Clinical Picture

Most infections with WNV are mild. 82% of infected people are asymptomatic, 17% have a mild febrile illness only and less than 1% develop a febrile neurological illness. Of those with a neurological illness due to WNV, 3-15% die. Symptomatic and severe disease tends to spare the young. The majority of disease occurs between 30 and 90 years of age with a median range of 55 to 70 years. Signs and symptoms of infection can occur 3-14 days after the mosquito bite.

Symptoms include fever, headache, and body aches. Occasionally a morbilliform (maculopapular) rash appears concentrated on the neck, trunk and upper extremities. Lymphadenopathy may be seen as well. More severe infection is characterized by headache (60%), high fever (90%), altered mental status (60%) - including disorientation, stupor or coma, muscle weakness (40%), stiff neck (30%) and

Communicable Disease Office

2240 E. Gonzales Road, Oxnard, California 93036 (805) 981-5201 FAX (805) 981-5200

photophobia (30%). Patients may also have tremors (myoclonus is nearly universal), ataxia, optic neuritis, Parkinson-like signs or convulsions, and some may have complete flaccid paralysis (10%). Sixty percent of patients have some gastrointestinal-related complaint or an abnormality on abdominal exam.

The total leukocyte count is normal or slightly elevated. Hyponatremia is seen occasionally. The cerebrospinal fluid (CSF) shows a pleocytosis with an excess of lymphocytes, though neutrophilia is common as well. Symptomatic patients with neurologic illness occasionally have CSF white counts of 0. The CSF protein runs from 51 to 900 mg/dl with a mean of 111. The CSF glucose is normal. The head CT is negative, but in one-third of cases, the MRI demonstrates enhanced leptomeningeal or periventricular areas or both.

Predictors of death include a change in consciousness, advanced age and possibly, diabetes mellitus. Patients with neurological disease require intensive care units 25% of the time, and mechanical ventilation 10% of the time. Only one-third of patients with neurological involvement due to West Nile Virus infection are discharged from the hospital fully ambulatory. Nearly one-half do not return to full neurological function. One recent study suggest up to 40% of WNV infection cases may go on to develop evidence of renal dysfunction over the following 5-10 yrs.

Diagnosics

Specialized testing will be done by the Ventura County Public Health Department. Priority for testing will be given to patients with encephalitis, aseptic meningitis (in individuals \geq 18 years of age), acute flaccid paralysis, atypical Guillain-Barre Syndrome or transverse myelitis, febrile illness compatible with West Nile infection and lasting \geq 7 days (must be seen by a health care provider) or aseptic meningitis in patients under 18 years of age, after a negative workup for enterovirus.

Specimens required for testing are: Serum – red top. 3-5 cc. (Specimen may be sent with a clot).

Specimen Submittal Form is available at:

http://www.vchca.org/docs/public-health/west_nile_req_2012.pdf?sfvrsn=0

West Nile Surveillance Case History Form is available at:

http://www.vchca.org/docs/public-health/wnv_case-hx_vta_co_08-2012.pdf?sfvrsn=0

Complete the West Nile Surveillance Case History Form and the Specimen Submittal Form with the specimen. CSF specimens may be collected and frozen. For management of frozen specimens and/or to arrange for submission of specimens call the Public Health Lab at (805) 981-5131.

For after hours questions, call (805)656-9432.

Treatment

The only known therapy for West Nile Virus infection is supportive. Ribavirin has some small amount of in vitro activity. In one study performed in Israel, patient outcomes were **worse** with ribavirin. Interferon Alpha has been suggested as having some activity against the West Nile Virus. **Before using this or any other agent, consult with a national expert in this area.**

Resources

VCEH <http://www.ventura.org/rma/envhealth/technical-services/vector/west-nile.html>

CDPH <http://westnile.ca.gov/>

CDC <http://www.cdc.gov/ncidod/dvbid/westnile/q&a.htm>

Prevalence of Chronic Kidney Disease and Progression of Disease Over Time among Patients Enrolled in the Houston West Nile Virus Cohort

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0040374>

This bulletin is intended to improve the public health in our county by keeping key physicians and nurses informed of noteworthy diagnoses, disease trends and other events of medical interest. Another goal of a public health department is to educate. We hope that you will use this information to increase your awareness. Please allow us to continue in our role of speaking to the press so that we may maximize the educational message to the benefit of all citizens of Ventura County.

Communicable Disease Office

2240 E. Gonzales Road, Oxnard, California 93036 (805) 981-5201 FAX (805) 981-5200