Test Definition: WEEPC

West Equine Enceph Ab Panel, CSF

Overview

Useful For

Aiding in the diagnosis of Western equine encephalitis

Testing Algorithm

See Mosquito-borne Disease Laboratory Testing in Special Instructions.

Special Instructions

- Mosquito-borne Disease Laboratory Testing

Method Name

Immunofluorescence Assay (IFA)

NY State Available

No

Specimen

Specimen Type

CSF

Advisory Information

This assay detects Western equine antibodies only. For a complete arbovirus panel, order ABOPC / Arbovirus Antibody Panel, IgG and IgM, Spinal Fluid.

New York State clients: This test is not available for specimens originating in New York.

Specimen Required

Container/Tube: Sterile vial

Specimen Volume: 0.8 mL

Forms

If not ordering electronically, complete, print, and send a Microbiology Test Request (T244) with the specimen.

Specimen Minimum Volume

0.7 mL

Reject Due To

Gross hemolysis	OK
Gross lipemia	OK

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
CSF	Refrigerated (preferred)	14 days	
	Frozen	14 days	

Clinical and Interpretive

Clinical Information

The virus that causes Western equine encephalitis (WEE) is widely distributed throughout the United States and Canada; disease occurs almost exclusively in the western states and Canadian provinces. The relative absence of the disease in the eastern United States probably reflects a paucity of the vector mosquito species, *Culex tarsalis*, and possibly a lower pathogenicity of local virus strains.

The disease usually begins suddenly with malaise, fever, and headache, often with nausea and vomiting. Vertigo, photophobia, sore throat, respiratory symptoms, abdominal pain, and myalgia are also common. Over a few days, the headache intensifies; drowsiness and restlessness may merge into a coma in severe cases. The onset may be more abrupt in infants and children than for adults. WEE should be suspected in any case of febrile central nervous system (CNS) disease from an endemic area. Infants are highly susceptible to CNS disease and about 20% of cases are under 1 year of age. There is an excess of male patients with WEE clinical encephalitis, averaging about twice the number of infections detected in female patients. After recovery from the acute disease, patients may require several months to 2 years to overcome the fatigue, headache, and irritability. Infants and children are at a higher risk of permanent brain damage after recovery than adults.

Infections with arboviruses can occur at any age. The age distribution depends on the degree of exposure to the particular transmitting arthropod relating to age, sex, and occupational, vocational, and recreational habits of the individuals. Once humans have been infected, the severity of the host response may be influenced by age. WEE tends to produce the most severe clinical infections in young persons.

Reference Values

IgG: <1:1

IgM: <1:1

Reference values apply to all ages.

Interpretation

Detection of organism-specific antibodies in the cerebrospinal fluid (CSF) may suggest central nervous system (CNS) infection. However, these results are unable to distinguish between intrathecal antibodies and serum antibodies introduced into the CSF at the time of lumbar puncture or from a breakdown in the blood-brain barrier. The results should be interpreted with other laboratory and clinical data prior to a diagnosis of CNS infection.

Cautions

All results must be correlated with clinical history and other data available to the attending physician.

False-positive results may be caused by breakdown of the blood-brain barrier, or by the introduction of blood into the cerebrospinal fluid at collection.

Western equine encephalitis and Eastern equine encephalitis viruses show some cross-reactivity; however, antibody response to the infecting virus is typically at least 8-fold higher.

Clinical Reference

1. Gonzalez-Scarano F, Nathanson N: Bunyaviruses. In Fields Virology. Vol 1. Second edition. Edited by BN Fields, DM Knipe. Raven Press, 1990, pp 1195-1228

2. Donat JF, Rhodes KH, Groover RV, Smith TF: Etiology and outcome in 42 children with acute nonbacterial meningoencephalitits. Mayo Clin Proc 1980;55:156-160

3. Tsai TF: Arboviruses. In Manual of Clinical Microbiology. Seventh edition. Edited by PR Murray, EJ Baron, MA Pfaller, et al. ASM Press, 1999, pp 1107-1124

4. Calisher CH: Medically important arboviruses of the United States and Canada. Clin Microbiol Rev 1994;7:89-116

5. Markoff L: Alphaviruses (Chikungunya, Eastern equine encephalitis). In: Bennett JE, Dolin R, Blaser MJ, eds. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. 9th ed. Elsevier; 2020:1997-2006

Performance

Method Description

Dilutions of cerebrospinal fluid (CSF) are prepared and allowed to react with substrate cells infected with the appropriate arbovirus. If antibodies to this virus are present in the CSF of the patient, an antigen-antibody complex will develop that can be detected by a fluorescein-labeled antibody directed to human globulin.(Tsai TF: Arboviruses. In: Fields BN, Knipe DM, eds. Fields Virology. Vol 1. 2nd ed. Raven Press; 1990:1195-1228; Beaty BJ, Casals J, Brown KL, et al: Indirect fluorescent-antibody technique for serological diagnosis of LaCrosse [California] virus infections. J Clin Microbiol. 1982;15:429-434; Beckham JD, Tyler KL: Arbovirus Infections. Continuum (Minneap Minn). 2015 Dec;21(6 Neuroinfectious Disease):1599-1611. doi: 10.1212/CON.0000000000000240)

PDF Report

No

Day(s) and Time(s) Test Performed

May through October: Monday through Friday; 9 a.m.

November through April: Monday, Wednesday, Friday; 9 a.m.

Analytic Time

Same day/1 day

Maximum Laboratory Time

4 days

Specimen Retention Time

2 weeks

Performing Laboratory Location

Rochester

Fees and Codes

Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact Customer Service.

Test Classification

This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration.

CPT Code Information

86654 x 2

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
WEEPC	West Equine Enceph Ab Panel, CSF	69036-2

Result ID	Test Result Name	Result LOINC Value
26371	West Equine Enceph Ab, IgG, CSF	9315-3
26372	West Equine Enceph Ab, IgM, CSF	9316-1