

Viral Meningitis/Encephalitis



Case Definition

Clinically compatible illness and laboratory-confirmed virus identification using serologic or isolation techniques.

Reporting Requirements

- Positive isolates or positive serologic tests for viral meningitis/encephalitis are reportable by laboratory.
- Clinical cases of viral meningitis/encephalitis need not be reported by attending health care professional, unless the case results in neurological sequelae or death.
- Meningitis/encephalitis due to Western Equine Encephalitis, measles, mumps or rubella should be reported under those diseases.

Clinical Presentation/Natural History

Viral meningitis/encephalitis is a relatively common but rarely serious syndrome with multiple viral etiologies. It usually appears as a sudden onset of fever, with headache, and other signs and symptoms of meningeal involvement and abnormal CSF findings. A rash resembling rubella characterizes certain types of viral meningitis caused by echoviruses and coxsackieviruses; vesicular and petechial rashes may also occur. Active illness seldom exceeds 10 days. Recovery is usually complete. GI and respiratory symptoms may be associated with infection with enteroviruses.

Various diseases caused by non-viral agents may mimic aseptic meningitis, such as inadequately treated pyogenic meningitis, tuberculous and cryptococcal meningitis, and post-vaccinal reactions, including sequelae to measles, mumps, varicella and post-rabies immunization.

Etiology

Numerous viruses can cause this syndrome, but half or more of cases have no demonstrable etiology. In Canada, enteroviruses cause most cases of known etiology, particularly coxsackievirus and echovirus. In addition, arboviruses, measles, herpes simplex and varicella viruses, adenovirus and others are responsible for sporadic cases.

Epidemiology

Reservoir: Humans and probably certain birds, mammals and reptiles.

Transmission: Depends on specific virus, but for enteroviruses, generally directly by fecal-oral or respiratory droplet contact with an infected person, or indirectly by contact with articles freshly soiled with feces or throat discharges from an infected person. Western equine encephalitis is transferred through bites by infected mosquitoes.

Occurrence:

General: Some viruses have a worldwide distribution, others are localized. Cases may be sporadic or occur in epidemics. Seasonal increases in late summer and early autumn are due mainly to arboviruses and enteroviruses.

Manitoba: Between 1995 and 1999, 290 cases of viral meningitis were reported in Manitoba (Echo=153, Unspec=72, Entero=34, Coxsackie=26, Herpes simplex=5). Outbreaks tend to occur in late summer or early autumn.

Incubation Period: Depends on the specific virus, but for enteroviruses, often three to five days.

Susceptibility and Resistance: Susceptibility is universal unless immunization has been given for specific viral diseases, such as measles, Japanese encephalitis or varicella. Illness is more frequent and more severe in infants, children and the elderly.

Period of Communicability: Depends on the specific virus, but for enteroviruses, generally during the acute stage of infection, although stool may contain virus for several weeks.

Diagnosis

Under optimal conditions, specific identification can be made in about half of cases, using serologic and virus isolation techniques. Viral agents may be isolated in early stages from throat washings and stool, and occasionally from CSF and blood. Typical CSF findings include pleocytosis (usually mononuclear but may be polymorphonuclear in early stages), increased protein, normal sugar and absence of bacteria.

Key Investigations

- CSF examination and viral isolation or serology.

Control

Management of Cases:

- Enteric precautions are indicated for seven days after onset, unless a non-enteroviral diagnosis is established.

Management of Contacts:

- Investigation of contacts is not of practical value.

Management of Outbreaks:

- General notice to health professionals of the presence of an epidemic and the necessity for differentiation of cases from more serious medical or surgical emergencies.

Preventive Measures:

- Immunization is available for Japanese encephalitis.