



MENINGITIS, VIRAL

CRUDE DATA	
Number of Cases	807
Annual Incidence ^a	
LA County	8.5
United States	N/A
Age at Diagnosis	
Mean	27
Median	24
Range	<0–90 years
Case Fatality	1
LA County	<1.0%
United States	N/A

^a Cases per 100,000 population.

DESCRIPTION

Viral meningitis, also referred to as aseptic meningitis, is a clinical syndrome in which no etiologic agent is identified on bacterial culture or examination of cerebrospinal fluid. Viral meningitis can occur at any age but is most common among the very young. Symptoms are characterized by sudden onset of fever, severe headache, stiff neck, photophobia, drowsiness or confusion, nausea and vomiting and usually last from 7 to 10 days. Enteroviruses, the etiologic agents most commonly associated with viral meningitis, are not vaccine-preventable (except for polioviruses) and account for 85% to 95% of all cases in which a pathogen is identified. Estimates from the Centers for Disease Control and Prevention (CDC) indicate that 10 to 15 million symptomatic enteroviral infections occur annually in the US, which includes 30,000 to 75,000 cases of meningitis. Transmission of enteroviruses may be fecal-oral, respiratory or by another route specific to the etiologic agent. Since the arrival of West Nile Virus (WNV) in Southern California in 2003, this etiology should be considered as an important cause of aseptic meningitis, especially in adults, and the appropriate diagnostic tests should be obtained. Prevention strategies and laboratory testing for WNV infections is detailed in a dedicated chapter. Treatment for enteroviral and WNV-associated viral meningitis is supportive; recovery is usually complete and associated with a low mortality rates. Antiviral agents are for treatment of viral meningitis due to for herpes viruses.

Figure 1
Viral Meningitis
Incidence Rates by Year of Onset
LAC, 1994–2004

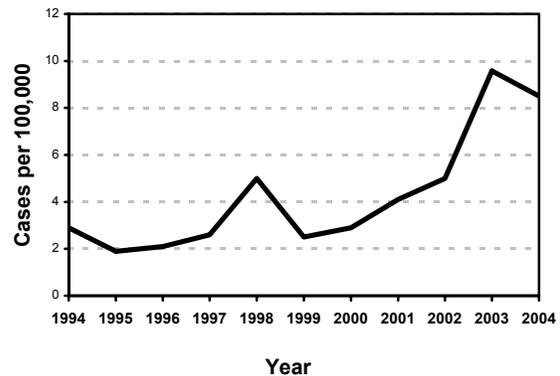
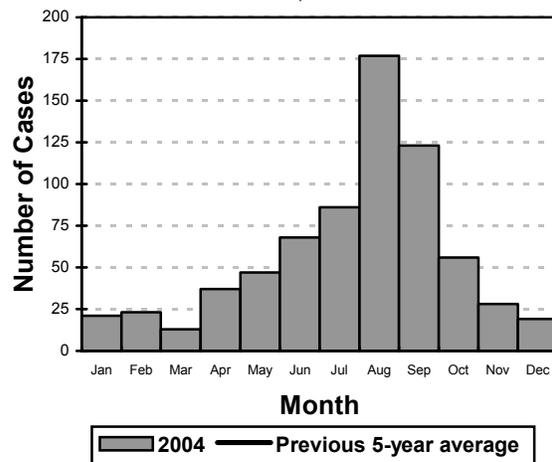


Figure 2
Viral Meningitis
Cases by Month of Onset,
LAC, 2004



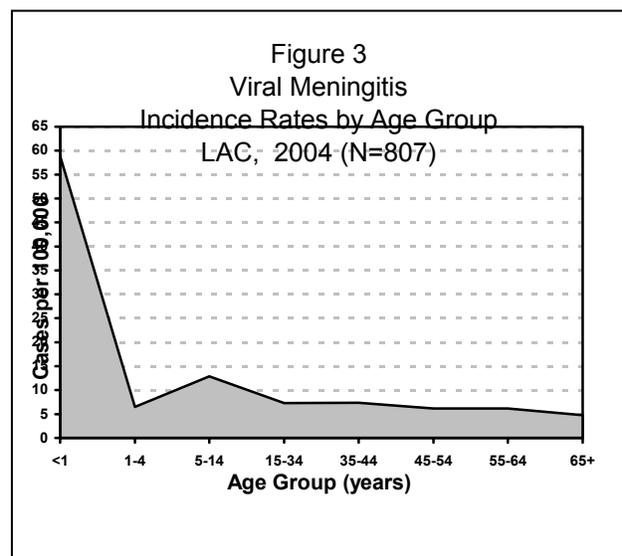


DISEASE ABSTRACT

- In 2004, there were a total of 807 cases of viral meningitis compared to 899, representing a 10% decrease from 2003.
- The annual incidence decreased from 9.6 to 8.5 cases per 100,000 in 2003 and 2004, respectively.
- The summer seasonal case increase continued later into the year compared with the previous 5-year average (Figure 2).
- West Nile virus, an arboviral infection, was an important cause of aseptic meningitis in 2004. Eighty-two (10%) cases were associated with WNV meningitis (See WNV section for details).
- Infants less than 1 year old had the highest age-group specific rate, 58.9 per 100,000, of any age group (Figure 3). In contrast to 2004, in 2003, 15-34 year olds had the highest age specific incidence rates for viral meningitis, 10.8 per 100,000.
- The case fatality rate remained low; only 1 death was reported in 2004.
- There was one outbreak reported in a junior high school involving 4 cases of viral meningitis. The etiology was determined to be enterovirus by PCR analysis of the cerebral spinal fluid. All students recovered without sequelae.

COMMENTS

Surveillance for viral meningitis is passive and only outbreaks, not individual cases, are investigated. The number of cases reported annually is considered to be significantly lower than the actual burden of disease. In 2004, the overall viral meningitis incidence rate of 8.5 cases per 100,000 was less than that reported in 2003, 9.6 per 100,000. Reporting bias may contribute to fluctuations in annual incidence rates. From 2003 to 2004, increased reporting of viral meningitis and testing for underlying WNV infection was encouraged among health care providers and hospital infection control practitioners, which could account for an increased viral meningitis incidence rates during those years.



Information about the causative agents of viral meningitis is rarely included with case reports because viral cultures and nucleic acid based- tests such as PCR analysis of the cerebral spinal fluid is not routinely performed at most medical facilities. When an etiology is determined, enteroviruses, is the most frequently identified agent. Improvements in molecular testing capabilities should lead to faster diagnoses and more appropriate management of viral meningitis such as less use of inappropriate antibiotics and fewer and shorter hospital admissions.

Supportive measures, and to a lesser extent antiviral agents, are the usual treatments for viral meningitis. Good personal hygiene, especially handwashing and avoiding contact with oral secretions of others, is the most practical and effective preventive measure.

ADDITIONAL RESOURCES

Tunkel AR, Scheld WM. Acute Meningitis. In Mandell, Douglas, and Bennett's Principles and Practices of Infectious Diseases 6th Edition. Elsevier, Churchill Livingstone, 2005, 1083-1085.

CDC. Respiratory and Enteric Viruses Branch, Viral (Aseptic) Meningitis at:
www.cdc.gov/ncidod/dvrd/virlmen.htm

CDC. Respiratory and Enteric Viruses Branch, Non-polio Enterovirus Infections at:
www.cdc.gov/ncidod/dvrd/entrvirs.htm



Association of State and Territorial Directors of Health Promotion and Public Health Education, Infectious Facts, Viral Meningitis at: www.astdhphe.org/infect/vmenin.html

CDC. Outbreaks of Aseptic Meningitis Associated with Echoviruses 9 and 30 and Preliminary Reports on Enterovirus Activity—United States, 2003. MMWR 2003; 32:761-763. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5232a1.htm>



Map 9. Meningitis, Viral Rates by Health District, Los Angeles County, 2004*

