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Epidemic Viral Meningitis Sweeps Alaska

During the months of July, August, and September 1982, a major epidemic of viral meningitis swept across the State of Alaska. During this three-month period, 106 cases of viral meningitis were reported compared to the endemic average rate of 6-10 cases of viral meningitis per year. Cases have been reported from all parts of the State and have predominately affected younger age groups. Seventy-one percent of all cases of viral meningitis occurring between June and October, 1982, occurred in children less than fourteen years of age. No cases were reported in persons forty-five years or older. Males and females were equally affected. The outbreak now seems to be over; only five cases were reported during October.

Figure 1. Viral Meningitis, State of Alaska, 1982
N=118

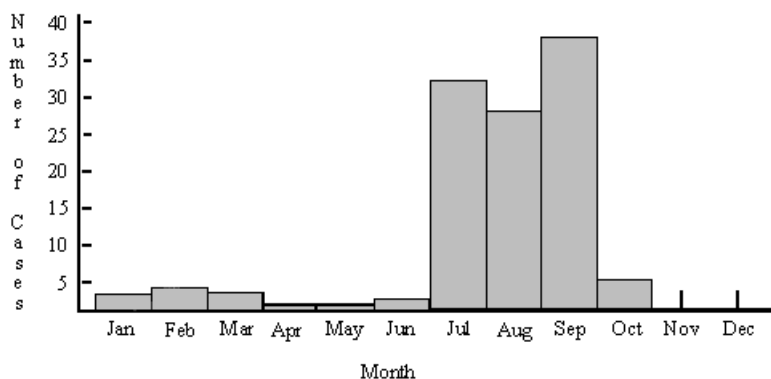
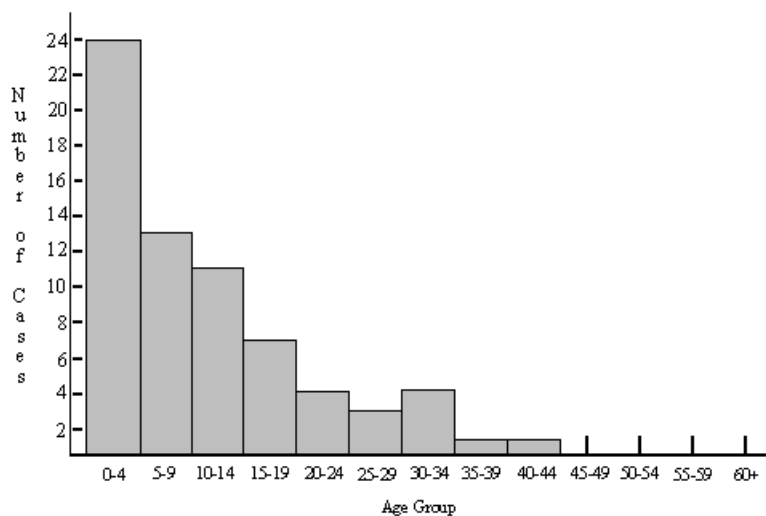


Figure 2. Viral Meningitis, State of Alaska,
June - October, 1982
N=118



The outbreak of viral meningitis began in the village of Tyonek in late June and early July. An alert physician at the Alaska Native Medical Center reported that two children were air- evacuated from the village of Tyonek to Anchorage with high fever, stiff neck, severe headache, vomiting, somnolence, muscle aches, and photophobia. Lumbar puncture confirmed findings consistent with viral meningitis. Viral cultures were obtained and an enterovirus, ECHO 30, was recovered. In addition, paired serologic specimens documented a four-fold rise in titer to ECHO 30 from both patients.

An epidemiologic investigation was begun on July 23 in Tyonek to characterize the outbreak of viral meningitis. Questionnaires were administered and blood was drawn from 25 individuals who had been ill during the month of July. At a second visit on August 13, convalescent bloods were obtained on 22 of the patients in Tyonek who had clinical symptoms compatible with viral meningitis. Ten of the patients showed a diagnostic four-fold rise in titer to ECHO 30, thus, confirming the etiologic agent involved in the outbreak of viral meningitis. An additional 12 cases of viral meningitis were diagnosed on the basis of clinical symptoms; serological tests were not available to confirm the diagnosis.

In summary, a major outbreak of viral meningitis caused by ECHO 30 enterovirus occurred in the village of Tyonek in July, 1982. In Tyonek all cases of viral meningitis occurred in children less than 19 years of age with the majority of cases occurring in children between the ages of one and nine. Noted in the outbreak was familial clustering and an epidemic curve suggested an incubation period of approximately five days during the outbreak. Although patients were extremely ill with their acute symptoms, no serious sequelae were observed, and all patients recovered uneventfully, usually within a week of the onset of their illness.

Viral surveillance and serological surveillance was conducted on sporadic cases occurring during the months of July, August, and September from around the State. ECHO 30 enterovirus was recovered from numerous patients from Bethel, Elmendorf, Anchorage, Fairbanks, the North Slope, and Southeast Alaska, confirming that the major outbreak of viral meningitis that swept Alaska this summer was due to ECHO 30 enterovirus.

A striking seasonality has been observed in ECHO 30 enterovirus outbreaks in northern climates. The virus spread through the fecal-oral route from person-to-person. Familial clustering is often observed in outbreaks, and about 50% of infections tend to be asymptomatic. Incubation periods range from 2-14 days, with the usual incubation period of 3-5 days. The recovery of ECHO 30 virus from one of the patients ill with viral meningitis from Tyonek early in July was critical in confirming the etiology of this outbreak. There are 67 enterovirus types. The identification of ECHO 30 allowed us to test acute and convalescent serologies against a specific virus. Previously outbreaks of ECHO 30 enterovirus have occurred in Juneau in 1978, in Cordova in 1970, and in Kotzebue in 1972. The virus predominately affects those in younger age groups. No mortality has been observed from ECHO 30 disease in Alaska.

(Reported by Don Ritter, Chief, Virology-Rabies Laboratory, Northern Regional Lab, Section of Laboratories, Division of Public Health, Virginia Trenton, Community Health Aide, Tyonek, Dr. Robert Fortune, ANMC, Anchorage)