

Florida Poison Information Center/Jacksonville
At Shands Jacksonville
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1-800-222-1222

Venezuelan Equine Encephalitis

History/Mechanism of Action

Venezuelan Equine Encephalitis (VEE) is a mosquito borne alphavirus disease maintained in nature predominantly in a horse-mosquito-horse cycle, although thousands of natural human infections also occur each year. Large equine epizootics typically precede the appearance of human cases. The US first weaponized VEE in the 1950's and 60's. The use of VEE as a weapon would presumably involve aerosolization, and such usage might be suspected on the basis of a preponderance of human cases and/or the presence of VEE outside of its typically well-localized focus in the Americas. VEE is characterized by inflammation of the meninges of the brain and of the brain itself.

Diagnosis

The diagnosis of VEE is largely clinical. Significant leukopenia and lymphopenia is often present. Virus may be cultured from serum and a VEE-specific IgM ELISA exists, but may not be readily available.

Symptoms

VEE may be thought of as an incapacitating agent with a mortality rate (in naturally-occurring disease) of less than 1%. Susceptibility is nearly 100%, and disease is characterized by its sudden onset following an incubation period of 1-5 days. Symptoms initially include generalized malaise, severe headache, fever and rigors, photophobia, and myalgias. Cough, sore throat, and vomiting and diarrhea may follow. Only a small percentage of cases actually progress to encephalitis. Young children are more at risk for meningismus, convulsions, coma, and paralysis. The route of exposure probably has little effect on the amount of cases developing neurologic disease. If no neurologic sequelae develop, the majority of cases will have a full recovery in 1-2 weeks. Infection during pregnancy may cause encephalitis in the fetus, abortion, or congenital abnormalities.

Medical Management

Decontamination

Universal precautions should be practiced when dealing with VEE patients. The virus may be destroyed by heat (80°C for 30 minutes) and by ordinary disinfectants, such as a 0.5% hypochlorite solution. The patient's room should be treated for 5 days after the onset of symptoms with a disinfectant.

Treatment of VEE is largely supportive. Analgesics may be given for myalgias and headache in uncomplicated VEE.

Prophylaxis

Prevention of naturally-occurring VEE is dependent largely upon mosquito control efforts and the immunization of horses.

Bibliography

1. Biological Agent Information Papers, United States Army Institute of Infectious Diseases.
2. Medical Management of Biological Casualties Handbook. The United States Army. 1998.



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