

Arboviral Infections

Traveler Summary

This article discusses Rift Valley fever, Ross River fever, and equine encephalitis.

See also: *Chikungunya*, *Yellow Fever*, *Dengue*, *Japanese Encephalitis*, *Tick-Borne Encephalitis*, *West Nile Virus*, *Viral Hemorrhagic Fevers*, and *Zika*.

Key Points

- | Ross River fever, Rift Valley fever (RVF), and equine encephalitis are infections caused by arboviruses transmitted by mosquitoes. RVF virus can also be transmitted through contact with the blood or tissue of infected animals (e.g., during slaughter, meat preparation, or while on hunting safaris).
- | Risk to travelers is difficult to predict but is normally low and seasonal.
- | Symptoms include fever, redness of the conjunctiva (the transparent membrane covering the white of the eyeball), muscle and joint pain, pain in the orbit (bony socket) of the eye, photophobia (sensitivity to light), rash, and enlarged lymph glands.
- | With RVF, serious infections can lead to liver damage, brain damage, or clotting abnormalities that may result in severe or fatal bleeding.
- | Prevention includes avoidance of places where disease occurs, avoidance of places that have had recent flooding and warm temperatures (which encourage mosquito breeding), and use of personal protection measures. In areas with RVF, avoid contact with animal tissue and blood and avoid consumption of unpasteurized milk or raw meat. No vaccine or preventive drugs are currently available for these viruses.
- | Immunity after human infection is usually life-long.

Introduction

Ross River fever, RVF, and equine encephalitis are infections caused by arboviruses transmitted by mosquitoes. Most human infections are mild but some can cause serious disease. Many of these infections result in small, localized epidemics that occasionally involve travelers. Immunity after human infection is usually life-long.

Risk Areas

Ross River fever virus is present in most areas of Australia.

RVF virus is mainly found in southern and eastern Africa, Madagascar, Mauritania, Chad, Sudan, the Nile Valley and Delta, and Israel.

Equine encephalitis virus is found in the U.S., Central America, the Caribbean islands, and northwestern South America.

Transmission

Arboviruses causing Ross River fever, RVF, and equine encephalitis are transmitted by mosquitoes through bites to humans, who are incidental hosts. RVF virus can also be transmitted through contact with the blood or tissue of infected animals (e.g., during slaughter, meat preparation, or while on hunting safaris). The arboviruses live in sheep, goats, cattle, rodents, birds, horses, and donkeys, as well as in the mosquitoes carrying the disease. Outbreaks of human infections are often local and seasonal and are affected by climate changes that result in flooding and warm temperatures.

Risk Factors

Risk of arboviral infections to travelers is difficult to predict but is normally low and seasonal. Risk factors for infection vary because the mosquito vectors differ in their breeding sites and biting times. However, travelers who stay in accommodations or visit places that are not protected against mosquitoes are at greater risk.

Risk for RFV is low for most travelers but higher for travelers sleeping outdoors in areas where outbreaks among animals are

occurring. Risk is also higher for hunters, veterinarians, slaughterhouse workers, and herdsmen.

For equine encephalitis, residents are at risk rather than travelers, except during periods of outbreaks among animals.

Symptoms

Symptoms usually appear less than 1 week following exposure. Most arboviral infections include fever, redness of the conjunctiva (the transparent membrane covering the white of the eyeball), muscle and joint pain, pain in the orbit (bony socket) of the eye, photophobia (sensitivity to light), rash, and enlarged lymph glands. Jaundice (yellowing of the skin and eyes), confusion, convulsions, and shock may also occur.

Consequences of Infection

Serious infections can lead to liver damage, brain damage, or clotting abnormalities that may result in severe or fatal bleeding.

Need for Medical Assistance

The majority of arboviral infections require no medical attention. Severe general symptoms or specific symptoms, which are more likely with RVF, will require hospitalization and investigation. Treatment is supportive.

Prevention

General prevention advice for most travelers includes the following (no vaccine or preventive drugs are currently available):

- | Avoid places where there is known disease occurring or where recent flooding and warm temperatures encourage mosquito breeding.
- | In areas with RVF, avoid contact with animal tissue and blood.
- | In areas with RVF, avoid consuming unpasteurized milk or raw meat.
- | For personal protection measures (see also *Insect Precautions*), wear clothing that covers as much skin as practicable, and apply an insect repellent containing DEET (concentration 30-35%) or picaridin (concentration 20% or greater for tropical travelers). If not sleeping in a sealed, air-conditioned room, sleep under a permethrin-impregnated bed net.

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