Tick-Borne Diseases

Traveler Summary

This article discusses babesiosis, anaplasmosis, and ehrlichiosis. For information on other tick-borne diseases of importance to travelers, see ***Rickettsial Infections***, ***Lyme Disease***, and ***Tick-Borne Encephalitis***.

Key Points

- Tick-borne diseases are caused by bacteria or parasites that are transmitted through the bite of infected ticks in certain regions of North America, Europe, and South America.
- Risk is increased for travelers going to affected countries who engage in hunting, hiking, or camping in forested or brushy areas where tick reservoirs abound.
- Symptoms are variable and may include fever, chills, headache, muscle aches, confusion, and rash.
- Consequences of infection may include excessive bleeding, multiorgan failure, and death.
- Prevention includes wearing long, light-colored trousers tucked into boots when hiking and observing personal protective measures against tick bites.
- No vaccine or preventive drugs are available.

Introduction

Tick-borne diseases are commonly transmitted by the bite of infected ticks that carry different pathogens, such as the parasite that causes babesiosis, the bacteria that cause anaplasmosis and ehrlichiosis, and the viruses that cause Powassan disease and severe fever with thrombocytopenia syndrome (STFS). These diseases are predominant in North America, Europe, and South America, especially during late spring and summer; travelers going to these areas (with extensive outdoor exposure) are at increased risk.

Risk Areas

Tick-borne diseases may occur worldwide, but distribution is based on geographical location. Babesiosis is found in certain regions of North America and forested areas in Europe and East Asia. Anaplasmosis is common in North America, Europe, and China. Ehrlichiosis is common in the US, certain areas of Europe, South America, and Africa. Powassan disease is found in northeastern US and far eastern Russia. SFTS is found in the US and Asia-Pacific region.

Transmission

Tick-borne diseases are mainly transmitted through the bite of infected ticks in affected areas. Babesiosis can also be transmitted through blood transfusions and from a pregnant woman to her unborn child.

Risk Factors

Risk is increased for travelers who engage in extensive outdoor activities (such as hunting, hiking, camping, or field work in forested or brushy areas or gardening near such areas) where tick reservoirs abound.

Older age, abnormal spleen function, weakened immune system, and liver or kidney disorders are conditions that increase risk for severe disease.

Symptoms

Symptoms common to tick-borne diseases include fever, chills, headache, muscle aches, and nausea. Other symptoms include the following:

- Babesiosis: dark urine, loss of appetite, and tiredness. Some persons may have no symptoms after infection.
- Anaplasmosis: abdominal pain, cough, confusion, and (rarely) rash
- Ehrlichiosis: vomiting, diarrhea, confusion, red eyes, and rash
- Powassan disease: fever, headache, vomiting, rash, weakness, mental status change

- SFTS: fever, vomiting, diarrhea, and swollen lymph nodes

Consequences of Infection

Consequences of infection differ by disease:

- Babesiosis: hypotension, anemia, multiorgan failure, and death
- Anaplasmosis: excessive bleeding, difficulty breathing, and kidney failure
- Ehrlichiosis: multiorgan failure, excessive bleeding, and inflammation of the brain and spinal cord
- Powassan disease: confusion, seizures, movement disorders, and death
- SFTS: nervous system symptoms, excessive bleeding, multiorgan failure, and death

Need for Medical Assistance

Travelers who have been exposed to tick-bites or develop symptoms of tick-borne diseases should seek immediate medical attention, especially if they have abnormal spleen function or weakened immune system or are elderly. Doxycycline may be used to treat persons with anaplasmosis or ehrlichiosis.

Prevention

Nonvaccine

Wear long, light-colored trousers tucked into boots when hiking and observe personal protective measures against tick bites. These precautions reduce, but do not eliminate, the risk of tick bites and acquiring a tick-borne disease. See ***Insect Precautions***.
