

Rickettsial (Spotted & Typhus Fevers)

Rickettsial infections are caused by a variety of bacteria from the genera *Rickettsia*, *Orientia*, *Ehrlichia*, *Neorickettsia*, *Neoehrlichia*, and *Anaplasma* (Table 3-18). *Rickettsia* spp. are classically divided into the typhus group and spotted fever group (SFG). *Orientia* spp. make up the scrub typhus group. The rickettsial pathogens most likely to be encountered during travel outside the United States include *R. africae* (African tick-bite fever), *R. conorii* (Mediterranean spotted fever), *R. rickettsii* (known as both Rocky Mountain spotted fever and Brazilian spotted fever), *O. tsutsugamushi* (scrub typhus), and *R. typhi* (murine typhus).

TRANSMISSION

Most rickettsial pathogens are transmitted by ectoparasites such as fleas, lice, mites, and ticks. Organisms can be transmitted by bites from these ectoparasites or by the inoculation of infectious fluids or feces from the ectoparasites into the skin. Inhaling or inoculating conjunctiva with infectious material may also cause infection for some of these organisms. The specific vectors that transmit each form of rickettsiae are listed in Table 3-18. Transmission of some rickettsial diseases after transfusion or organ transplantation is rare but has been reported.

CLINICAL PRESENTATION

Rickettsioses are difficult to diagnose, even by health care providers experienced with these diseases. Most symptomatic rickettsial diseases cause moderate illness, but some Rocky Mountain and Brazilian spotted fevers, Mediterranean spotted fever, scrub typhus, and epidemic typhus may be fatal in

20%–60% of untreated cases, so prompt treatment is essential.

Clinical presentations vary with the causative agent and patient; however, common symptoms that typically develop within 1–2 weeks of infection include fever, headache, malaise, rash, nausea, and vomiting. Many rickettsioses are accompanied by a maculopapular, vesicular, or petechial rash or sometimes an eschar at the site of the tick bite. African tick-bite fever is typically milder than some other rickettsioses, but recovery is improved with treatment. It should be suspected in a patient who presents with fever, headache, myalgia, and an eschar (tache noir) after recent travel to southern Africa. Mediterranean spotted fever is a potentially life-threatening rickettsial infection and should be suspected in patients with rash, fever, and eschar after recent travel to northern Africa or the Mediterranean. Rocky Mountain and Brazilian spotted fever are characterized by fever, headache, nausea, abdominal pain, and cough; a rash is commonly reported, but eschars are not. Scrub typhus should be suspected in patients with a fever, headache, and myalgia after recent travel to Asia; eschar, lymphadenopathy, cough, and encephalitis may be present. Patients with murine or epidemic typhus usually present with a severe but nonspecific febrile illness, and approximately half will also present with a rash. Ehrlichiosis and anaplasmosis should be suspected in febrile patients with leukopenia with an exposure history.

DIAGNOSIS

Diagnosis is usually based on clinical recognition and serology; the latter requires comparison of acute- to convalescent-phase serology, so is only helpful in retrospect. Etiologic agents can generally only be identified to the genus level by serologic testing. PCR and immunohistochemical analyses may also be helpful. If ehrlichiosis or anaplasmosis is suspected, a buffy coat may be examined to identify characteristic intraleukocytic morulae. Contact the CDC Rickettsial Zoonoses Branch at 404-639-1075 for further information.

TREATMENT

Treatment of patients with possible rickettsioses should be started early and should never await confirmatory testing, which may take weeks when serology is used. Immediate empiric treatment with a tetracycline is recommended, most commonly doxycycline. Broad-spectrum antibiotics are not usually helpful. Chloramphenicol may be an alternative in some cases, but its use is associated with more deaths, particularly for *R. rickettsii*. Expert advice should be sought if alternative agents are being considered.

PREVENTION

No vaccine is available for preventing rickettsial infections. Antibiotics are not recommended for prophylaxis of rickettsial diseases.

Travelers should be instructed to minimize exposure to infectious arthropods during travel (including lice, fleas, ticks, mites) and animal reservoirs (particularly dogs) when traveling in endemic areas. The proper use of insect or tick repellents, self-examination after visits to vector-infested areas, and wearing protective clothing are ways to reduce risk. These precautions are especially important for people with underlying conditions that may compromise their immune systems, as these people may be more susceptible to severe disease.

Edited by NDU medical office

Reference: Centers for Disease Control and prevention