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CDC HEALTH ADVISORY

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Potential for Q Fever Infection Among Travelers Returning from Iraq and the Netherlands

Summary

Increasing reports of Q fever among deployed U.S. military personnel due to endemic transmission in Iraq, as well as a large ongoing outbreak of Q fever in the Netherlands, may place travelers to these regions at risk for infection. Healthcare providers in the United States should consider Q fever in the differential diagnosis of persons with febrile illness, pneumonia or hepatitis who have recently been in Iraq or the Netherlands. Physicians are encouraged to submit samples for proper laboratory testing and contact the CDC for consultation if needed. Q fever cases in travelers should be promptly reported to proper authorities.

Background

Since Operation Iraqi Freedom commenced in 2003, over 200 cases of acute Q fever have been reported among U.S. military personnel deployed to Iraq. Since several of these cases were identified after returning to the U.S. or when they were no longer serving on active military duty, a heightened awareness for Q fever infection occurring in military personnel and civilian contractors is necessary to ensure prompt diagnosis and appropriate treatment. Q fever is endemic in the Middle East, and transmission may be influenced by hot, dusty conditions and livestock farming practices which may facilitate windborne spread.

In addition, a large number of Q fever cases have occurred in the Netherlands since 2007, with over 3,700 human cases reported through March 2010. Infected dairy goat farms are believed to be the source of the outbreak, and the majority of human cases have been reported in the southern region of the country. To date, no imported cases of Q fever have been reported among American travelers returning home from the Netherlands.

Because travelers to these countries may have a higher likelihood of exposure to Q fever, the CDC Rickettsial Zoonoses Branch advises that physicians evaluate travelers returning from Iraq (particularly military personnel and civilian contractors) and the Netherlands with febrile illness, pneumonia or hepatitis for potential Q fever infection. Probable and confirmed cases should be reported to their local or state health department.

Q Fever Illness

Q fever is a zoonotic disease with both acute and chronic phases caused by the pathogen *Coxiella burnetii.* The primary mode of transmission to humans is inhalation of aerosols or dust contaminated by infected animals, most commonly cattle, sheep or goats. Direct animal contact is not required for transmission to occur as the organism may be spread by dust or wind. Infections via ingestion of contaminated dairy products and human-to-human transmission via sexual contact have rarely been reported. Q fever does occur in the United States, but fewer than 200 cases are reported annually.

Although asymptomatic infections may occur, an unexplained febrile illness, sometimes accompanied by pneumonia and/or hepatitis, is the most common clinical presentation. Illness onset typically occurs within 2-3 weeks after exposure. The mortality rate for acute Q fever is low (1-2%), and the majority of persons with mild illness recover spontaneously within a few weeks although antibiotic treatment will shorten the duration of illness and lessen the risk of complications. Chronic Q fever is uncommon (<1% of acutely infected patients) but may cause life-threatening heart valve disease (endocarditis). Patients with pre-existing heart valve disorders, pregnant women, and immunosuppressed persons are at increased risk for developing chronic Q fever. A Q fever vaccine is not commercially available in the United States and antibiotic prophylaxis is not recommended.

Recommendations

Physicians seeing a patient - particularly military personnel or a civilian contractor - who has an illness consistent with Q fever and who has traveled to Iraq or the Netherlands in the 30 days prior to illness onset should perform appropriate laboratory testing. Serologic testing should be requested for IgG and IgM antibodies against *C. burnetii* Phase I and II antigen using indirect immunofluorescence assay (IFA). PCR assays may be conducted on whole blood samples in the early stages of illness and prior to initiation of antibiotic therapy.

Serologic evidence of a fourfold rise in IgG Phase II antibody by indirect immunofluorescence assay (IFA) between paired sera taken 2-4 weeks apart is the gold standard for diagnosis of acute infection. A single high serum Phase II IgG titer by IFA (≥ 1:128) is considered evidence of probable infection. IgM testing alone should not be used for serodiagnosis as false positives may occur. Treatment should not be delayed while awaiting laboratory results. Doxycycline (100mg twice a day for 2-3 weeks) is the treatment of choice for acute Q fever.

Whenever possible, physicians should submit paired acute and convalescent serum samples to facilitate optimal diagnostic testing.

Type of sample	Interval from onset of symptoms to specimen collection	Type of Analysis
Acute - whole blood	1-7 days (prior to	PCR

	antibiotic therapy)	
Acute - serum	1-7 days	IFA for Phase I and II IgG and IgM
Convalescent - serum	21-35 days	IFA for Phase I and II IgG and IgM

Q fever is a nationally notifiable disease. A completed CDC Q fever Case Report Form should be submitted to the state health department for all probable and confirmed Q fever cases (http://www.cdc.gov/ncidod/dvrd/qfever/case_rep_fm.pdf). The patient's history of travel should be clearly noted on the case submission form.

For More Information:

- Additional information about Q fever is available at: http://www.bt.cdc.gov/agent/qfever/clinicians/index.asp.
- Call CDC's toll-free information line, 800-CDC-INFO (800-232-4636) TTY: (888) 232-6348, which is available 24 hours a day, every day.
- Contact the Rickettsial Zoonoses Branch at CDC: (404) 639-1075.

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DEPARTMENT OF HEALTH AND HUMAN SERVICES