BRUCELLOSIS PROPHYLAXIS (BIOTERRORISM)

I. DEFINITION:

Brucellosis, also known as “undulant fever,” is a zoonotic bacterial disease that is caused by four different species of Brucellae bacteria. In the United States, most cases of human brucellosis are associated with the ingestion of unpasteurized dairy products or with recreational hunting or occupational exposure to infected animals or their tissues.

II. ETIOLOGY AND EPIDEMIOLOGY:

A. Four Brucella species are pathogenic to humans: B. abortus, B. melitensis, B. suis, and B. canis. Different animals serve as reservoirs for the various Brucella species with cattle and other bovine animals being the primary reservoir for B. abortus, sheep and goats for B. melitensis, and swine (both domestic and feral) for B. suis. Animals such as elk, caribou, bison, and deer may also be infected. Domestic dogs and wild canines (wolves, fox, coyote, etc.) are the animal reservoir for B. canis. Transmission to human occurs through direct contact of infected tissue or body fluids with broken skin or conjunctivae, ingestion of contaminated meat or dairy products, or inhalation of infected aerosols. Human to human transmission is extremely rare; transmission between humans has occurred via breast-feeding, in utero, and sexual transmission. Although uncommon, transmission may also occur via contaminated tissue transplantation. Some instances of Brucella exposure have occurred in the laboratory setting as a result of not adhering to standard laboratory infection control precautions.

B. The incidence of brucellosis in the United States is <0.5 cases per 100,000 population, primarily caused by B. melitensis. Most cases are reported from California, Florida, Texas and Virginia.

C. The incubation period for brucellosis is usually 5-60 days.

D. Brucella species is an agent that may be used for bioterrorism.

III. CLINICAL FEATURES:

A. Characterized by acute or insidious onset of fever and one or more of the following:

1. Night sweats
2. Arthralgia
3. Headache
4. Fatigue
5. Anorexia
6. Myalgia
7. Weight loss
8. Arthritis/spondylitis
9. Meningitis
10. Focal organ involvement (endocarditis, orchitis/epididymitis, hepatomegaly, splenomegaly).

B. Laboratory Criteria

1. Isolation of Brucella spp. from a clinical specimen;
2. Fourfold or greater rise in Brucella antibody titer between acute and convalescent phase serum specimens obtained greater than or equal to 2 weeks apart;
3. *Brucella* total antibody titer of greater than or equal to 160 by standard tube agglutination test (SAT) or *Brucella* microagglutination test (BMAT) in one or more serum specimens obtained after onset of symptoms; or
4. Detection of *Brucella* DNA in a clinical specimen by PCR assay.

IV. MANAGEMENT:

A. In the event of a suspected release of *Brucella* organisms, notify the Acute Disease Service (ADS) Epidemiologist-on-Call immediately (405-271-4060) for investigation. Criteria for classifying persons that were exposed to an intentional release will be established based upon the circumstances of the particular release.

B. In the event of an outbreak, the State Epidemiologist and State Health Officer will remain in contact with the Centers for Disease Control and Prevention (CDC) and will provide updated, situational guidelines for prophylaxis.

V. CONSULTATION AND REFERRAL:

A. If the client has a contraindication to the above PEP therapy, contact the local county health department State Health Officer or the State Epidemiologist for instructions on alternate therapy.

B. If a client develops signs or symptoms of brucellosis disease, refer to the client’s medical provider and report to the ADS epi-on-call immediately.

C. Refer victims of bioterrorism for mental health services as needed.

VI. COUNSELING AND EDUCATION:

A. At time of issuance of oral antibiotics, it is important that clients be counseled that all medications may have undesirable side effects. It is critical that clients inform the public health nurse of any adverse reactions and NOT discontinue the antibiotic prophylaxis without medical consultation.

B. Educate clients and general population that person-to-person transmission of brucellosis is uncommon.

VII. FOLLOW-UP:

Each client who is placed on PEP should be given instructions to call the local county health department upon completion of therapy or should be issued a postcard addressed to the local county health department to provide notification of completed therapy.
REFERENCES:


Medical Management of Biological Casualties Handbook, 7th Ed, USAMRIID, Maryland, 2011: p. 43, Retrieved from: 


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