Florida Poison Information Center/Jacksonville
At Shands Jacksonville
University of Florida Health Science Center
1-800-222-1222

Tularemia

History

Tularemia is a zoonotic bacterial disease caused by a small gram-negative, pleomorphic nonmotile rod, *Francisella tularensis.* First described in 1837 by Soken, the disease has mostly been associated with lagomorphs (hares and rabbits) although virtually any animal can carry it. Tularemia occurs worldwide and is endemic between 30 and 71 degrees north latitude. In the United States it is most common in the southwest central region.

Ingestion of contaminated meat or inoculation by direct exposure or the bites of hard ticks has been the most common method of transmission. The incidence of Tularemia is low with fewer than 300 cases reported annually since the mid-1960's.

The potential impact of *Francisella tularensis* as a biological warfare agent is well illustrated by a 1970 World Health Organization publication. This report estimated that if 50 kg of aerosolized bacteria were dispensed by an airplane 2 km upwind of a population center of 500,000 in ideal meteorological conditions the number of dead or incapacitated would be about 155,000. The United States weaponized tularemia in the 1950's and 1960's before the US offensive biological warfare program was terminated.

Mechanism of Action

Inhalation of aerosolized tularemia would cause the typhoidal or pneumonic forms of tularemia. Initially, small areas of localized pneumonitis may be apparent. However, lobular consolidation or abscess formation is rare. As few as 10-50 organisms will cause disease if inhaled. *F. tularensis* can remain viable for weeks in water, soil, carcasses, and hides.

Symptoms

The incubation period is from 1-21 days with an average of 3-5 days. Typhoidal or septicemic tularemia manifests as fever, chills, headache, prostration, and weight loss without lymphadenopathy. Respiratory symptoms of substernal discomfort and a nonproductive cough may also be present.

Medical Management

Diagnosis

Diagnosis is made by isolating the organism from blood, sputum, skin, or mucosal lesions. However, diagnosis may be difficult due to unusual growth requirements and/or overgrowth of commensal bacteria.

Isolation

Person to person transmission is rare and respiratory isolation is not required. The organism is killed by heat and by standard disinfectants.

Antibiotics that have been used:

Streptomycin

Gentamycin

Prophylaxis

Antidote

A live attenuated tularemia vaccine is available as an Investigational New Drug from USAMRIID (Ft Detrick, MD 21702). It is administer once through scarification.

Antibiotics

Tetracycline has been used

Bibliography

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