

SECTION I - INFECTIOUS AGENT

NAME: *Borrelia burgdorferi*

SYNONYM OR CROSS REFERENCE: Lyme disease, relapsing fever, Erythema chronicum migrans (ECM) with polyarthrits, Lyme arthritis, Tickborne meningopolyneuritis.

CHARACTERISTICS: Spirochete, first identified in 1982.

SECTION II - HEALTH HAZARD

PATHOGENICITY: Tickborne zoonotic disease characterized by distinctive skin lesion (ECM), systematic symptoms, polyarthrits, and neurological and cardiac involvement; malaise, fatigue, fever, headache, stiff neck, myalgia, migratory arthralgias or lymphadenopathy lasting several weeks and may precede lesions; neurological and cardiac abnormalities weeks to months after onset of ECM; chronic arthritis may develop.

EPIDEMIOLOGY: In USA, endemic foci along east coast, Wisconsin, Minnesota, California and Oregon-, One endemic area in Southern Ontario; Europe, USSR, and Australia; cases occur primarily during summer; distribution coincides with abundance of relevant ticks.

HOST RANGE: Humans, deer, wild rodents.

INFECTIOUS DOSE: Unknown.

MODE OF TRANSMISSION: By exposure to an infected tick.

INCUBATION PERIOD: From 3-32 days after tick exposure.

COMMUNICABILITY: No evidence of natural transmission from person to person.

SECTION III - DISSEMINATION

RESERVOIR: Deer, wild rodents (mice), ticks through transstadial transmission.

ZOONOSIS: Yes - bite of tick from an infected animal.

VECTORS: Ticks -

Ixodes dammini (eastern and midwestern USA).

Dermacentor variabilis

Ixodes pacificus (western USA, Europe)

SECTION IV - VIABILITY

DRUG SUSCEPTIBILITY: Sensitive to tetracyclines and penicillin.

SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to 1% sodium hypochlorite (20% commercial bleach) and 70% ethanol.

PHYSICAL INACTIVATION: Sensitive to heat, UV.

SURVIVAL OUTSIDE HOST: Infected guinea pig blood - 28 to 35 days at room temperature, survives for short periods in urine.

SECTION V - MEDICAL

SURVEILLANCE: Monitor for appearance of typical lesions; serological tests show a rise in antibodies directed against the spirochete.

FIRST AID/TREATMENT: Treatment of ECM stage with tetracycline for adults and penicillin for children may prevent or lessen the severity of the major late cardiac, neurologic or arthritic complications, other antibiotic regimes recommended for later stages.

IMMUNIZATION: None available.

PROPHYLAXIS: None available.

SECTION VI - LABORATORY HAZARDS

LABORATORY-AQUIRED INFECTIONS: 45 reported cases up to 1976 with 2 deaths.

SOURCES/SPECIMENS: Clinical specimens - blood, cerebrospinal fluid, urine, skin scrapings, retinal and synovial specimens; naturally or experimentally infected mammals, their ectoparasites and their infected tissues.

PRIMARY HAZARDS: Accidental parenteral inoculation and exposure to infectious aerosols.

SPECIAL HAZARDS: Ectoparasites (ticks) on laboratory animals.

SECTION VII - RECOMMENDED PRECAUTIONS

CONTAINMENT REQUIREMENTS: Biosafety Level 2 practices, containment equipment and facilities for activities involving known or potentially infectious materials, including necropsy of infected animals.

PROTECTIVE CLOTHING: Laboratory coat; gloves should be worn during necropsy of infected animals and when contact with infectious materials is unavoidable.

OTHER PRECAUTIONS: None

SECTION VIII - HANDLING INFORMATION

SPILLS: Allow aerosols to settle; wearing protective clothing, gently cover spill with paper towels and apply 1% sodium hypochlorite (20% commercial bleach), starting at perimeter and working way towards the center of the spill; allow sufficient contact

time (30 min.) before clean up.

DISPOSAL: Decontaminate before disposal - steam sterilization, chemical disinfection, incineration.

STORAGE: In sealed containers that are appropriately labeled.

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