Brucellosis

Brucellabacteria are Gram-negative , immobile rods. They are **strictly aerobic** bacteria and grow slowly on blood agar. Within the host, they act as facultative intracellular pathogens.

Epidemiology , transmission , and symptoms

Brucellosis is primarily a disease of **animals** and attacks the sugar-rich organs of **erythritol**(mammary glands, uterus, epididymis, etc.). The organism occurs in these animal organs and causes infertility, sterility, mastitis, abortions, or is only transmitted. **People** who come into close contact with infected animals (slaughterhouse workers, veterinarians, farmers, dairy workers) are at risk of **brucellosis** . The global **incidence** is about 500,000 cases per year. There are 4 known types of brucellosis that cause human disease:

- *B. abortus* (cattle),
- *B. suis* (pig),
- *B. melitensis* (goats, sheep)
- *B. canis* (psi).

Although **brucellosis** has been eradicated in most developed countries of the world, it is still found in many developing countries. *B. abortus* and *B. canis* **cause** mild purulent infections, while *B. suis* causes more severe purulent infections that can lead to the destruction of the lymphoreticular system and kidney. *B. melitensis* causes the most severe disease, which is prolonged and tends to return. Bacteria **penetrate** into the human (host) through the oropharyngeal mucosa (swallowing, inhalation), abraded skin or through the conjuctiva. The infection usually occurs through direct contact with contaminated material, but can also occur when ingested unpasteurized milk and dairy products. Bacteriaare taken up by neutrophilic granulocytes and monocytesand concentrated in the local lymph nodes , where they proliferate within the cell. If the bacteria are not destroyed or stored in the nodes, they are released from there, which leads to bacteremia. Organisms migrate to other lymphoreticular organs (spleen, bone marrow , liver, testes). This is accompanied by accumulation of granulation tissue and the formation of microabscesses. Symptoms of the disease include **fever**, **chills, sweating, fatigue, myalgia, muscle weakness and loss of appetite** . Joints are also often affected. Brucellosis can be acute or chronic. Fatal cases (0–3%) are associated with endocarditis.

Pathogenesis

Symptoms are related to the presence of bacteria in the body and appear **2-4 weeks** (sometimes up to 2 months) after exposure. During the stay in the phagolysosome, *B. abortus* releases 5'-guanosine and adenine, which can inhibit peroxidase degranulation, thus preventing its destruction. Intracellular persistence of bacteria results in the formation of a granulation deposit and tissue damage by hypersensitivity reactions (mostly type IV).

Diagnosis

The diagnosisis based on the prolonged presence of high, often **undulating fever** , **muscle and joint pain** and the patient's epidemiological history (contact with animals, etc.). **Culture** (blood samples, blood-enriched media) and **serology** (to confirm the diagnosis) are used in the diagnosis.

Prevention and treatment

It is usually treated with a combination of antibiotics, eg doxycyclinewith gentamicinor streptomycin, cotrimoxazolwith gentamicin.

Preventive measures are based on disease control in animals and adherence to veterinary and hygienic principles. There is no commercial vaccine for humans.

Links

Related Articles

- Antropozoonoses

External links

- Brucellosis (Wikipedia) (https://cs.wikipedia.org/wiki/Brucel%C3%B3za)

References

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