

Perspective

Impacts of brucellosis, prevention, control measures and treatment

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DESCRIPTION

Brucellosis, also known as undulant fever or malta fever, is a neglected zoonotic disease caused by bacteria belonging to the genus *brucella*. It affects both humans and animals, leading to significant health and economic consequences. With a global distribution, brucellosis remains a public health concern in many regions, especially in developing countries with limited resources for disease control and prevention.

The bacteria responsible for brucellosis are primarily transmitted through direct contact with infected animals or consumption of contaminated animal products, such as unpasteurized milk and cheese. *Brucella* species commonly infect domesticated animals like cattle, goats, sheep, pigs, and dogs, but wild animals such as deer, elk, and bison can also be carriers. Human infection usually occurs through occupational exposure in high-risk groups, including farmers, veterinarians, abattoir workers, and laboratory personnel.

Once the bacteria enter the body, they can invade various organs and tissues, causing a wide range of symptoms. The clinical manifestations of brucellosis are nonspecific and often resemble those of other febrile illnesses, making diagnosis challenging. Common symptoms include intermittent or sustained fever, headache, fatigue, muscle pain, joint pain, and night sweats. In severe cases, complications can arise, affecting the cardiovascular, musculoskeletal, gastrointestinal, and neurological systems.

The burden of brucellosis is not limited to its impact on human health. The disease also poses significant economic challenges due to decreased productivity in livestock and trade restrictions imposed by countries with control programs. Infected animals often suffer from abortions, reduced fertility, decreased milk production, and weight loss. The economic losses associated with brucellosis can be substantial, affecting

farmers' livelihoods and impeding agricultural development in affected regions.

Prevention and control of brucellosis require a comprehensive approach that combines measures targeting both animals and humans. In livestock, strategies include vaccination, screening and culling of infected animals, and the implementation of biosecurity measures to prevent contact with infected wildlife. Vaccines, such as the *brucella* abortus strain 19 (s19) and rev-1, have been successful in reducing the incidence of brucellosis in some countries.

In humans, preventive measures focus on raising awareness about the disease and promoting safe practices. This includes pasteurization of milk and dairy products, consumption of meat from reliable sources, and adherence to personal protective measures when handling animals or animal products. Improved diagnostic capacity and surveillance systems are crucial for early detection and prompt treatment of cases, as well as for monitoring the disease's prevalence and distribution.

Treatment of brucellosis typically involves a combination of antibiotics, such as doxycycline and rifampicin, administered over a prolonged period. Early diagnosis and appropriate treatment can significantly reduce the duration of illness and the risk of complications. However, relapses can occur even after successful treatment, underscoring the need for continued surveillance and follow-up care.

Efforts to combat brucellosis are further complicated by the lack of a universally effective human vaccine. While several vaccine candidates have shown promise in preclinical and early clinical trials, their availability for widespread use remains limited. Developing an effective human vaccine is a priority in the fight against brucellosis, as it can provide long-lasting protection and reduce the disease's burden in endemic regions.

Brucellosis is a neglected zoonotic disease with significant implications for human and animal health. Its global impact

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underscores the need for increased attention, resources, and collaborative efforts to control and prevent its spread. By promoting awareness, implementing effective prevention

measures, investing in research and development, and strengthening healthcare systems.