

The epidemiology and immunopathophysiology of brucellosis in small ruminant

ABSTRACT

Brucella melitensis is one of the major zoonotic pathogens worldwide with enormous economic losses as well as considerable human morbidity in endemic areas. The global burden of its incidence in both human and animal populations remains significantly at an alarming rate. The impact of the disease is even multidimensional in nature and not always well understood and significantly complicating effective policy response. The pathogenesis is complex and governed by several factors working together in synergistic manner. The evolutionarily developed diverse evasion strategy to avoid the host's innate and adaptive immunity is further worsening the situation. Until recently, lipopolysaccharide (LPS) remains the major virulent factor of *B. melitensis* and responsible for the mechanism by which the pathogen causes its deleterious effects. Mechanisms presiding to the colonization of the pregnant uterus in different animal species are still largely unknown. Information related to the epidemiology and immunopathophysiology is still scarce in the database and control programs are rarely implemented. Therapy is based on wide spectrum antibiotics with mysterious outcome. The pre-existing vaccines appear not promising. Thus, understating the biological behaviour of the disease becomes a fundamental issue. In this review, we highlight various key aspects of the disease with special reference to the epidemiology and the immunopathophysiology of the disease in sheep goat populations.

Keyword: *Brucella melitensis*; Epidemiology; Immunopathophysiology; Small ruminant brucellosis; Virulence factors; Zoonosis