Brucellosis: Global Reportable Disease in Most Countries

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Abstract

Brucellosis, Bang's disease, Crimean fever, Gibraltar fever, Malta fever, Maltese fever, Mediterranean fever, rock fever, or undulant fever, is a highly contagious zoonosis caused by ingestion of unpasteurized milk or undercooked meat from infected animals or close contact with their secretions.

Keywords: Infected animals; Animal husbandry; Zoonosis; Raw milk; Chronic disease; Brucellae

Introduction

Brucellae species are small, Gram-negative, nonmotile, nonspore-forming, rod-shaped bacteria. ey function as facultative intracellular parasites, causing chronic disease, which usually persists for life. Four species infect human: B. melitensis, B. abortus, B. suis, and B. canis. B. melitensis is the most virulent and invasive species; it usually infects goats and occasionally sheep. B. abortus is less virulent and is primarily a disease of cattle. B. suis is of intermediate virulence and chie y infects pig. B. canis resides in the dogs [1]. Symptoms include profuse sweating and joint and muscle pain.

Brucellosis is a bacterial disease caused by various Brucella species, which mainly infect cattle, swine, goats, sheep and dogs. Humans generally acquire the disease through direct contact with infected animals, by eating or drinking contaminated animal products or by inhaling airborne agents. Most cases are caused by ingesting unpasteurized milk or cheese from infected goats or sheep [2].

Brucellosis is one of the most wide spreading zoonosis transmitted by animals and in endemic areas, human brucellosis has serious public health consequences. Expansion of animal industries and urbanization, and the lack of hygienic measures in animal husbandry and in food handling, partly account for brucellosis remaining a public health hazard.

Brucellosis is found globally and is a reportable disease in most countries. It a ects people of all ages and both sexes. In the general population, most cases are caused by the consumption of raw milk or its derivatives such as fresh cheese. Most of these cases are from sheep and goat products.

e disease is also considered an occupational hazard for people who work in the livestock sector. People who work with animals and are in contact with blood, placenta, foetus and uterine secretions have an increased risk of contracting the disease. is method of transmission primarily a ects farmers, butchers, hunters, veterinarians and laboratory personnel [3].

Worldwide, Brucella melitensis is the most prevalent species causing human brucellosis, owing in part to di culties in immunizing free-ranging goats and sheep.

Prevention of brucellosis is based on surveillance and the prevention of risk factors. e most e ective prevention strategy is the elimination of infection in animals. Vaccination of cattle, goats and sheep is recommended in enzootic areas with high prevalence rates. Serological or other testing and culling can also be e ective in areas with low prevalence. In countries where eradication in animals through vaccination or elimination of infected animals is not feasible, prevention of human infection is primarily based on raising awareness, food-safety measures, occupational hygiene and laboratory safety [4].

Literature Review

Pasteurization of milk for direct consumption and for creating derivatives such as cheese is an important step to preventing transmission from animals to humans. Education campaigns about avoiding unpasteurized milk products can be e ective, as well as policies on its sale.

In agricultural work and meat-processing, protective barriers and correct handling and disposal of a erbirths, animal carcasses and internal organs is an important prevention strategy.

Brucellosis typically causes u-like symptoms, including fever, weakness, and malaise and weight loss. However, the disease may present in many atypical forms. In many patients the symptoms are mild and, therefore, the diagnosis may not be considered. e incubation period of the disease can be highly variable, ranging from 1 week to 2 months, but usually 2–4 weeks [5].

Treatment options include doxycycline 100 mg twice a day for 45 days, plus streptomycin 1 g daily for 15 days. e main alternative therapy is doxycycline at 100 mg, twice a day for 45 days, plus rifampicin at 15mg/kg/day for 45 days. Experience suggests that streptomycin may be substituted with gentamicin 5mg/kg/daily for 7–10 days, but no study directly comparing the two regimes is currently available. e optimal treatment for pregnant women, neonates and children under 8 is not yet determined; for children, options include trimethoprim combined with an aminoglycoside.

e prevention of human brucellosis is based on Education to avoid consuming unpasteurized milk and milk derivatives. Barrier precautions for hunters and professionals at risk [6]. Careful handling and disposal of a erbirths, especially in cases of abortion. Serological or other testing of animals; immunization of herds/ ocks may be envisaged; eliminate infected herds/ ocks. Occupational hygiene and

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food hygiene; Vaccination is not generally recommended. All dairy products should be prepared from heat-treated milk; Consumption of raw milk or products made from raw milk should be avoided. Meat should be adequately cooked. Special precautions should be taken by laboratory workers; Physicians and health workers should be aware of the possibility of brucellosis. Public health education should emphasize food hygiene and occupational hygiene. Treatment for brucellosis aims to relieve symptoms, prevent a relapse of the disease and avoid complications. You'll need to take antibiotics for at least six weeks, and your symptoms may not go away completely for several months.

e disease can also return and may become chronic [7]. Rifampicin is active in vitro against Brucellae species, is remarkably lipid soluble, and it accumulates within eukaryotic cells. In order to provide a completely oral regimen with which to treat brucellosis, the combination of doxycycline plus rifampicin, with both drugs administered for six weeks, was recommended by the WHO in 1986. Tetracycline administered for at least six weeks has long been the standard treatment of human brucellosis. Brucellosis has been eradicated from various developed countries but still it remains an important veterinary public health problem in most of the developing world as abortions and infertility in herds result in severe economic loss. Human brucellosis is commonly reported among laboratory workers, slaughter house employees, farmers and veterinarians who may be exposed to