

Seroprevalence of Bovine Brucellosis and its Public Health Significance in Selected Sites of Central High Land of Ethiopia

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Abstract : A cross-sectional study was conducted from December 2019 to May 2020 with the aim of determining the seroprevalence of brucellosis in dairy cows and their owners in the central highland of Oromia, Ethiopia. A total of 352 blood samples from dairy cattle, 149 from animal owners, and 17 from farm workers were collected and initially screened using the Rose Bengal Plate test and confirmed by the Complement Fixation test. Overall seroprevalence was 0.6% (95% CI: 0.0016-0.0209) in bovines and 1.2% (95% CI: 0.0032-0.0427) in humans. Market-based stock replacement (OR=16.55, p=0.002), breeding by artificial insemination (OR=7.58, p=0.05), and parturition pen (OR = 11.511, p=0.027) were found to be significantly associated with the seropositivity for Brucella infection in dairy cattle. Human housing (OR=1.8, p=0.002), contact with an aborted fetus (OR=21.19, p=0.017), drinking raw milk from non-aborted (OR=24.99, p=0.012), aborted (OR=5.72, p=0.019) and retained fetal membrane (OR=4.22, p=0.029) cows had a significant influence on human brucellosis. A structured interview question was administered to 284 respondents. Accordingly, most respondents had no knowledge of brucellosis (93.3%), and in contrast, 90% of them consumed raw milk. In conclusion, the present seroprevalence study revealed that brucellosis was low among dairy cattle and exposed individuals in the study areas. However, since there were no control strategies implemented in the study areas, there is a potential risk of transmission of brucellosis in dairy cattle and the exposed human population in the study areas. Implementation of a test and slaughter strategy with compensation to farmers is recommended, while in the case of human brucellosis, continuous social training and implementing one health approach framework must be applied.

Keywords : abortion, bovine brucellosis, human brucellosis, risk factors, seroprevalence

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