Prevalence and risk factors associated with Theileria parva infection in cattle in three regions of Tanzania

Prevalence and risk factors associated with Theileria parva infection in cattle in three regions of Tanzania

Ticks and tickborne diseases (TBDs) are serious constraints to cattle production in Tanzania and other tropical and subtropical countries. Among the TBDs, East Coast fever (ECF) is the most important as it causes significant economic losses to the cattle industry in Tanzania. However, control of ECF in Tanzania has continued to be a challenge due to inadequate epidemiological information. The main objective of this study was to determine the epidemiological situation of Theileria parva infections in cattle kept under pastoral and agro-pastoral farming systems in Mara, Singida, and Mbeya regions of Tanzania. Blood samples were collected from 648 cattle in the three regions. Genomic DNA was extracted and amplified in a polymerase chain reaction (PCR) using T. parva-specific primers targeting the 104-kD antigen (P104) gene. In addition, information was collected on the possible risk factors of T. parva infection (animal age, region, animal sex, tick burden, tick control method, and frequency of acaricide application). The prevalence of T. parva across the three regions was 14.2%. There was variation in prevalence among the three regions with Mara (21.8%) having a significantly higher (p = 0.001) prevalence than the other regions. Moreover, Mbeya exhibited relatively lower prevalence (7.4%) compared to the other regions. Factors found to be significantly associated with an animal being PCR positive for T. parva were region (p = 0.001) and tick burden (p = 0.003). Other factors were not found to be significant predictors of being PCR positive for T. parva. The present study showed high variation in tick burden and T. parva prevalence across the regions. Therefore, different strategic planning and cost-effective control measures for ticks and T. parva infection should be implemented region by region in order to reduce losses caused by ticks and ECF in the study area.

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