Evaluation of the agreement between comparative intra-dermal tuberculin and gamma interferon tests for the diagnosis of bovine tuberculosis in Ethiopia

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Abstract

The control of bovine tuberculosis is difficult in developing countries because of the high cost of a sustainable testing program and the lack of a diagnostic assay with high sensitivity and specificity to detect animals at all stages of infection. A cross- sectional study was conducted to evaluate the test agreement between comparative intra-dermal tuberculin test (CIDT) and Interferon gamma (INF-γ) tests for diagnosis of bovine tuberculosis (BTB) at Holeta, Ethiopia from December, 2012 to May, 2013. In this study, a total of 114 cattle were tested both by CIDT and INF-γ tests. The agreement between INF-γ (PPDB-PPDA) and CIDT tests was fair (k=0.288). On the other hand, a moderate agreement (k= 0.44) was observed between INF-γ test (PPDB-PPDA) and INF-γ test (ESAT6/ CFP10 - Nil). The differences between reaction sizes at the bovine PPD injection site and the avian PPD injection site was significant (*t test*; P<0.001). INF-γ response was stronger to ESAT6-CFP10 protein cocktails compared to its response to PPD (B-A). Logistic regression analysis showed a significant association of animal age group with the responses of CIDT and INFγ tests. In conclusion, the fair agreement between the CIDT and INF-γ tests could indicate that the two tests are not completely overlapping and thus in addition to detecting a similar stage of the disease they do also detects the different stages of the disease. Hence, it is `advisable to use the two tests in combination.

Key word: *Bovine tuberculosis; comparative intra-dermal tuberculin test; Interferon gamma*

Biography

Yewubdar Gulelat has completed a doctorate degree in veterinary medicine from Hawassa University and a master degree on tropical and infectious disease from AddisAbaba University, Ethiopia. She is serving as a lecturer and president special advisor in Dilla University,Ethiopia. She also has been served as aboard member of Ethiopian Society of Tropical and infectious disease .

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