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

Yewubdar Gulelat, MSc, Dilla University, Ethiopia and
Gobena Ameni ,PHD, Aklilu Lemma Institute of Pathobiology, Ethiopia

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 .

Full name: Yewubdar Gulelat Zemedhun
Contact number:+251913065104
email: yewub2@yahoo.com
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