Evaluation of the Diagnostic Potential of IL-2 as Biomarker for the Discrimination of Active and Latent Tuberculosis

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Abstract : In the last years, the potential role of distinct T-cell subsets as biomarkers of active tuberculosis TB and/or latent tuberculosis infection (LTBI) has been studied. The aim of this study was to investigate the potential role of interleukin-2 (IL-2) in whole blood stimulated with M. tuberculosis-specific antigens in the QuantiFERON-TB Gold In Tube (QFT-G-IT) for the discrimination of active and latent tuberculosis. After 72-h of stimulation by antigens from the QFT-G-IT assay, IL-2 secretion was quantitated in supernatants by using ELISA (Mabtech AB, Sweden). Observing the level of IL-2 released after 72-h of incubation, we found that the level of IL-2 were significantly higher in LTBI group than in patients with active TB infection or control group (P value=0.019, Kruskal–Wallis test). The discrimination performance (assessed by the area under ROC curve) between LTBI and patients with active TB was 0.816 (95%CI: 0.72-0.97). Maximum discrimination was reached at a cut-off of 13.9 pg/mL for IL-2 following stimulation with 82% sensitivity and 86% specificity. In conclusion, although cytokine analysis has greatly contributed to the understanding of TB pathogenesis, data on cytokine profiles that might distinguish progression from latency of TB infection are scarce and even controversial. Our data indicate that the concomitant evaluation of IFN-γ and IL-2 could be instrumental in discriminating of active and latent TB infection.

Keywords : interleukin-2, discrimination, active TB, latent TB

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