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Title: Serum cytokines level can differentiate active pulmonary tuberculosis from latent TB

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Body: Tuberculosis disease occurred in only 5–10% of M tuberculosis (MTB) infected individuals, the rest became latent TB. Although both have its own definition and clinical criterias but in clinical setting it is not seldom difficult to be differentiated and resulted in under or overdiagnosed of TB activity. Underdiagnosed resulted in disease progression and spreading while overdiagnosed resulted in unnecessary expose to antituberculosis drugs. The purpose of this study is to analyze whether serum levels of IFN- γ , TNF- α , IL-10 and IL-12 could be used to differentiate active pulmonary TB with latent TB. This case control study was held in Hasan Sadikin General Hospital Bandung Indonesia between April 2011 to May 2012. Forty Pulmonary TB patients defined with positive sputum examination and forty latent TB was chosen as control to ascertain MTB exposure to those subjects. IFN- γ , TNF- α , IL-10 and IL-12 was measured with ELISA method. Mann-Whitney test found significant differences in IFN- γ , TNF- α , and IL-12 serum level between active TB groups and latent TB but not in IL-12 level. In receiver operating characteristic (ROC) analysis, sensitivity and specificity of IFN- γ level >1.48 pg/mL 97.5% and 87.5%, TNF- α level >2.53 pg/ml 92.5% and 90%, while IL-10 level >0.26 pg/mL 70% and 82.5% ($p < 0.001$). Multiple logistic regression analysis found that only IFN- γ and TNF- α serum levels were independently associated with active pulmonary TB and the adjusted OR for both were 55.2 and 15.9. In conclusions, interferon- γ and tumor necrosis factor- α serum levels could be used to differentiate active pulmonary TB from Latent TB.