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(Askandar Tjokroprawiro)

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Difference of Interferon Gamma γ Level (Release Assay) in Nurses Exposed to Mycobacterium Tuberculosis and Active Tuberculous Patients

Difference of Interferon Gamma γ Level (Release Assay) in Nurses Exposed to Mycobacterium Tuberculosis and Active Tuberculous Patients

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Abstract

Indonesia is a country with a high endemic tuberculosis prevalence. The eradication program is only focused in case finding and treating the active tuberculosis patients. The health care workers are at risk to tuberculosis infection, and there is no method yet to detect and monitor them. In low endemic tuberculosis countries, interferon γ (IFN- γ) can be used as a diagnostic tool to screen the tuberculosis infection in health care workers. The objective of this study was to know the differences of IFN- γ level by interferon gamma release assay (IGRA) in Mycobacterium tuberculosis-exposed nurse group and active tuberculosis patient's group. A cross sectional, observational analytical study of 13 nurses and 17 active tuberculosis patients, has been conducted from July to December 2006, at Dr. Soetomo General Hospital and Karang Tembok Hospital in Surabaya. There were 3 groups of analysis, first was the nurses group, second was the active tuberculosis patients group I who have been treated for 10.45 weeks and the third was the active tuberculosis patients group II who have been treated for 3.5 weeks. The IFN- γ assay was done using QuantiFERON-TB Gold In-Tube (Cellestis Ltd, Australia). One mL of whole blood was drawn into 3 tubes, nil control tube, TB antigen tube which contains ESAT-6, CFP-10 and TB7.7 and mitogen tube, then incubated at 37°C for 16-24 hours. The harvested plasma was then stored at -20°C until the ELISA was ready to be performed. Results showed that IFN- γ level in nurses group was 0.12-53.52 IU/mL (mean 10.35 IU/mL, SD 19.49 IU/mL), in the active tuberculosis patients group I was 0.12-26.44 IU/mL (mean 6.08 IU/mL, SD 9.82 IU/mL), and in the active tuberculosis patients group II was 0.14-29.38 IU/mL (mean 8.26 IU/mL, SD 10.91 IU/mL). There were no differences of IFN- γ level among the 3 groups of analysis, the nurses group, active tuberculosis patients group I and group II by Oneway ANOVA statistical test ($p = 0.798$). In conclusion, there were no differences found in IFN- γ level between the Mycobacterium tuberculosis-exposed nurses group and the active tuberculosis patients groups. Although IFN- γ level could not be differentiated between these two groups, it is shown that those with high IFN- γ level in the nurses group should be serially evaluated in order to monitor the possibility of progressiveness to active tuberculosis infection by IFN- γ measurement, clinical, microbiological and radiological examination.

Keyword : IFN- γ , release, assay, tuberculosis, ,

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