ABSTRAK

Meskipun Tuberkulosis Paru (TB Paru) adalah penyakit menular tetapi tidak semua orang yang terpapar *M. tuberculosis* akan menjadi sakit. Kerentanan seseorang terhadap infeksi tuberkulosis terutama ditentukan oleh sistim imunitas orang tersebut. Sistim imunitas yang paling berperan adalah imunitas seluler, yang dimotori sel-sel T-helper-1 CD4 dengan IFN-γ sebagai mediator atau aktivator utamanya dan sel-sel mononuklear sebagai efektornya. Untuk dapat bekerja dengan efektif sistim imunitas seluler ini memerlukan kadar IFN-γ dan reseptor IFN-γ di sel-sel mononuklear yang bekerja optimal. Tujuan penelitian ini adalah menganalisis korelasi antara kadar serum IFN-γ, ekspresi dan fungsi reseptor IFN-γ, dengan kejadian penyakit Tuberkulosis Paru.

Penelitian ini menggunakan metode observasi analitik dengan rancangan potong silang yang membandingkan kadar serum IFN-γ, fungsi dan ekspresi reseptor IFN-γ, pada pasien Tuberkulosis Paru BTA (+) dengan Pasangan Hidup Sehat, serta menganalisis . Subjek penelitian diambil secara *consecutive sampling* dari pasien TB Paru yang dirawat di RS Immanuel Bandung pada periode Juli 2009 sampai September 2010. Pemeriksaan darah rutin, sputum BTA, dan radiologi foto toraks dilakukan di RS Immanuel, Bandung. Pemeriksaan kadar serum IFN-γ dengan tehnik ELISA, serta pemeriksaan ekspresi dan fungsi reseptor IFN-γ dengan *Flow Cytometry* dikerjakan di laboratorium *Stem Cell & Cancer Institute*, Jakarta.

Nilai rerata kadar serum IFN-γ pasien TB 363,15 g/dL tidak berbeda bermakna dibanding pasangan hidup sehat 358,7 g/dL (p=0,826). Pada pasien TB nilai rerata ekspresi reseptor IFN-γ sebesar 91%, lebih tinggi secara bermakna dari pasangan hidup sehat 86,98% (p=0,041). Hasil analisis fungsi reseptor IFN-γ menunjukkan nilai rerata pasien TB sebesar 15,96% lebih rendah secara bermakna dibanding pasangan hidup sehat 28,09% (p=0,011). Penilaian korelasi antara kadar serum IFN-γ, ekspresi dan fungsi reseptor IFN-γ dengan kejadian TB Paru dilakukan dengan analisis korelasi *point biserial* dan *Odd Ratio*. Analisis tersebut mendapatkan satu-satunya variabel yang mempunyai korelasi bermakna dengan kejadian tuberkulosis paru adalah fungsi reseptor IFN-γ yang rendah (p=0,026, OR 5,56).

Simpulan penelitian ini adalah pada pasien TB Paru ekspresi reseptor IFN-γ lebih tinggi dari pasangan hidup sehat, tetapi fungsi reseptor IFN-γ lebih rendah dari pasangan hidup sehat. Fungsi reseptor IFN-γ yang rendah ini secara statistik mempunyai korelasi bermakna dengan kejadian tuberkulosis paru.

Kata kunci : tuberkulosis, kadar serum IFN-γ, ekspresi dan fungsi reseptor IFN-γ.

ABSTRACT

Pulmonary tuberculosis is a communicable disease. However, not everyone who is exposed to *M. tuberculosis* will be sick. The susceptibility toward tuberculosis infection is governed by the immune system of each individual. The main immune system in tuberculosis infection is cell mediated immunity that comprises of CD4 T-helper-1 cells with IFN-γ as the main mediator or activator, and mononuclear cells as its effector. In order to work effectively, the cell mediated immune system needs serum level of IFN-γ and its receptors in the surface of mononuclear cells to function optimally. The objective of this study is to analyze the correlation of IFN-γ serum level, expression and function of IFN-γ receptor, with pulmonary tuberculosis.

This study used analytical descriptive method with cross sectional design that compared the serum level of IFN-γ, function and expression of IFN-γ receptor AFB smear (+) pulmonary tuberculosis patients with their healthy spouses, and analyzing the correlation between these variables with pulmonary tuberculosis disease. Subjects of the study were chosen by consecutive sampling method from TB patients in Immanuel hospital Bandung from July 2009 until September 2010. Blood examination, AFB sputum, and chest x-ray were done in Immanuel hospital. Serum level of IFN-γ was analyzed using the ELISA technique, the function and expression of IFN-γ receptor by the Flow Cytometry, these analysis were done in Stem Cell & Cancer Institute Jakarta.

The average of IFN-γ serum level in TB patients was 363,15 g/dL, which was statistically not different from their healthy spouses with 358,7 g/dL (p=0,826). The average of IFN-γ receptor expression in TB patients was 91%, which was statistically significant higher than their healthy spouses with 86,98% (p=0,041). The result of IFN-γ receptor function analysis showed the average of TB patients was 15,96% which was statistically significant lower than their healthy spouses with 28,09% (p=0,011). Correlation analysis between serum level IFN-γ, expression and function of IFN-γ receptor with pulmonary tuberculosis was calculated with point biserial correlation and Odd Ratio analysis. These analysis showed that the only variable had significant correlation with pulmonary tuberculosis was low function of IFN-γ receptor (p=0,026,OR 5,56).

As a conclusion, the expression of IFN-γ receptor in pulmonary tuberculosis patients was higher, while the function of IFN-γ receptor was lower than their healthy spouses. The low function of IFN-γ receptor was statistically had significant correlation with pulmonary tuberculosis.

Key Words: Tuberculosis, IFN-γ serum level, IFN-γ receptor expression and function.