ABSTRACT

ANALYSIS OF IFN-γ AND IL-6 LEVELS AS INFLAMMATORY MARKERS AND THERAPEUTIC RESPONSE TO ANTI TUBERCULOSIS IN MDR TB PATIENTS

(Study at MDR-TB Unit of Dr. Soetomo Teaching Hospital Surabaya)

Background: MDR TB is an infectious disease caused by Mycobacterium tuberculosis that is resistant to isoniazid and rifampicin, with or without first-line antituberculosis. The standard for monitoring the efficacy of antituberculosis drug for MDR TB use microscopic analysis of Acid-fast bacilli (AFB) from sputum during treatment period. Cough is not dominant symptom in MDR TB patients and the sputum that is produced slightly in the morning. This is quite difficult on microscopic analysis of AFB, so that required other biomarker support to assess the condition of systemic inflammation caused by Mycobacterium tuberculosis. IFN-γ and IL-6 are proinflammatory cytokines stimulated by Th1 cells when macrophages are infected with Mycobacterium tuberculosis. Those markers can be used to in MDR TB.

Objective: The aim of this study was to analyze the serum levels of IFN-γ and IL-6 biomarkers as inflammatory agents and to analyze the correlation clinical parameters according to Bandim TB Score method.

Method: This study was an analytical observational method with cross sectional design. Data was collected from July to December 2017 period and had been approved by Ethical Committee of Dr. Soetomo Teaching Hospital Surabaya. Patients who met the inclusion criteria was included in four group patients based on the duration of MDR-TB regimens. Samples was analyzed by using enzyme-linked immunosorbent assay (ELISA) method before (pre) and after 4 weeks (post).

Result: In this study, 29 patients were included in to the four study group based on different length of therapy. There was an increase of IFN-γ levels in group 1 (46.77 pg/ml±100.23), a decrease in group 2 (147 pg/ml±166.61), a decrease in group 3 (41.55 pg/ml±103.59) and an increase in group 4 (9 pg/ml±189.58). There was an increase of IL-6 levels in group 1 (21.34 pg/ml±217.93), a decrease in group 2 (230.37 pg/ml±64.36), a decrease in group 3 (116.85 pg/ml±367.44) and an increase in group 4 (42.07 pg/ml±489.64).

Conclusion: The results showed that the serum levels of IFN-γ and IL-6 markers in four group patients who received MDR TB regimens after four weeks were not been changed significantly (p>0.05). Both of which were supported by Bandim TB Score of 89.66 % patients that indicated the inflammatory progression.

Keywords: Interferon-gamma, Interleukin-6, Multidrug-Resistant Tuberculosis, MDR TB regimens, Bandim TB Score, Inflammation Biomarker.