

ABSTRACT**ANALYSIS OF IFN- γ AND TNF- α LEVELS
AS INFLAMMATORY MARKERS AND THERAPEUTIC RESPONSE TO
ANTITUBERCULOSIS DRUGS IN MDR-TB PATIENTS****(Study at MDR-TB Unit of Dr. Soetomo Teaching Hospital Surabaya)**

Background : The development of MDR-TB in Indonesia needs more attention. According to Global Report Drug Resistant TB (2012), Indonesia has included the eight countries with the burden of MDR-TB in the world. The development of MDR-TB regimens can be seen from clinical marker, radiologic marker and immunologic marker of cytokines. Cytokines are produced to regulate the immune system in the inflammatory process. IFN- γ and TNF- α markers are believed to be the most important cytokines in the antimicrobial pathway that play a role in Mycobacterium tuberculosis infection.

Objectives : To analyze the changes of IFN- γ and TNF- α levels as inflammatory marker and anti-tuberculosis drug response and their association with clinical parameters according to Bandim TB Score method in MDR-TB patients.

Method : This study was an observational analytical study with cross sectional design, conducted at July-December 2017 and has been approved for ethical clearance by the Medical Research Ethics Committee of Dr. Soetomo Surabaya Hospital. Patients who met the inclusion criteria were classified in intensive and advance phases consist of four groups based on the duration of MDR-TB regimens. Serum levels of IFN- γ and TNF- α biomarkers were measured by ELISA method before (pre) and after 4 weeks (post).

Result : There were 29 patients who had received the MDR-TB regimens in different durations of therapy. After four weeks, there was a decrease of IFN- γ (39.42 ± 142.67 pg/ml) and TNF- α levels (38.93 ± 311.92 pg/ml), but there were no significant difference ($p > 0.05$) and no significant correlation with clinical parameters according to Bandim TB Score method ($p > 0.05$).

Conclusion : Serum levels of IFN- γ and TNF- α biomarkers in patients who received MDR-TB regimens in intensive and advance phases and after four-week period of observation showed the inflammation process still happened in MDR-TB patients, supported by clinical condition according to Bandim TB Score.

Keywords : interferon-gamma, tumor necrosis factor-alpha, MDR-TB, ELISA, Bandim TB Score