RESEARCH ARTICLE

Well-organized Granuloma Lymphadenitis Tuberculosis Expressed Lower Macrophage Migration Inhibitory Factor (MIF) Score Compared to the Poorly-organized Granuloma

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Abstract

BACKGROUND: The case of extra-pulmonary tuberculosis (EPTB) is common and the most type of extra-pulmonary tuberculosis found is lymphadenitis TB (LnTB). Macrophage migration inhibition factor (MIF) is correlated with TB, and low level of MIF was correlated to *Mycobacterium bacteremia*. Deficiency of MIF macrophage is known to be correlated to the increased of a lung pathology; however, its role on pathogenesis LnTB remains unclear. Hence, this study was conducted to analyze the correlation of MIF in several type of granuloma organization in LnTB.

METHODS: Block paraffin of the lymphoid tissue infected with *M. bacteremia* were analyzed with immunohistochemistry (IHC) to assess the MIF expression, by counting the immunoreactivity score (IRS) according to the intensity of stained cells and the level of staining. The histopathology type of LnTB was divided into well-organized granuloma (WOG) and poorly-organized granuloma (POG) based on the granuloma characteristics.

RESULTS: Among 100 tissues samples that fulfilled the study criteria, WOG was found in 51% cases. MIF was expressed mild positive in 21% samples, on the other hand, 79% was not expressed. There was a significant difference of MIF negative, as was found in 98% of WOG group while only 59% was found in POG group ($p<0.001$).

CONCLUSION: There is a significant correlation between MIF expression with the type of granuloma organization in LnTB. The expression of MIF in WOG group is mostly negative, as well as a half of the POG group. This results may suggests that MIF plays a role in the pathogenesis of granuloma formation in LnTB.

KEYWORDS: MIF, lymphadenitis TB, WOG, POG, immunohistochemistry

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Introduction

According to World Health Organization (WHO), lungs tuberculosis (TB) remains as a major health problem in the world.(1) Asia and Africa region, including Indonesia, in the head and neck.(3,4) The most frequent type of extrapulmonary TB (EPTB) is lymphadenitis TB (LnTB), which especially occur on the neck area.(5,6) A study in Ethiopia found that 65% of 3440 neck node was LnTB.(6) According to histopathology appearance, the type of LnTB in Indonesia was dominated by well-organized granuloma

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