ABSTRACT

Expression profile of Rab5, Rab7, TACO, Lep-LAM and PGL-1 on the failure of phagolysosome process in macrophage of the leprosy patients as a marker viability of *Mycobacterium leprae*

Cita Rosita Sigit Prakoeswa

Leprosy is a manifestation of human body failure in eliminating *M.leprae* invasion. The role of phagolysosome process in macrophage is important in the early phase of bacterial killing.

The purpose of this study is to clarify the involvement of Rab5, Rab7 and TACO from host macrophage, and Lep-LAM and PGL-1 from *M. leprae* cell wall as the reflection of phagolysosome process in relation to 16S rRNA *M.leprae* as a marker of viability of *M.leprae*.

Using a cross sectional design study, skin biopsy was obtained from 47 newly diagnosed, untreated leprosy patients in Dr Sutomo Hospital, Surabaya. RNA isolation and cDNA synthesis were performed to all samples, to detect 16S rRNA *M.leprae*. Conventional PCR using primer set P2 (forward) and P3 (reverse) and Real Time PCR using primer set P2 (forward), P34 (reverse) and probe, were performed to assure the viability of *M. leprae*. Based on the viability result, the samples were divided into two groups: 16S rRNA *M.leprae* positive and negative. The expression of Rab5, Rab7, TACO, Lep-LAM and PGL-1 was assessed by immunohistochemistry technique.

By Mann Whitney analysis, a significant difference expression profile of Rab5, Rab7, Lep-LAM and PGL-1 were found ($p<0.05$), but there was no significant difference of TACO between the two groups ($p>0.05$). By Spearman analysis there was a significant correlation between the score of Rab5, Rab7, Lep-LAM and PGL-1 and the score of 16S rRNA *M. leprae* ($p<0.05$). There was no significant correlation between the score of TACO and the score of 16S rRNA *M. leprae* ($p>0.05$).

As a conclusion in *M.leprae* infection, Rab5, Rab7 and Lep-LAM plays an important role in the failure of phagolysosome process via membrane trafficking pathway, while PGL-1 plays the role via blocking lysosomal activity. These inventions might be used for development of early diagnostic device in the future.

Key words:
M.leprae viable-16S rRNA-Rab5-Rab7-TACO-Lep-LAM-PGL-1- phagolysosome