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EFFECT OF Hsp70 EXPRESSION ON T-CD4+ LYMPHOCYTE APOPTOSIS IN HIV/AIDS INFECTION

Abstract

HIV/AIDS until now is still a global health problem including in Indonesia. The effect of Hsp70 expression to T-CD4 lymphocytes apoptosis mechanism in HIV/AIDS infection is still unclear. The objective of this study was to disclose the effect of Hsp70 expression to T-CD4 lymphocytes apoptosis mechanism in HIV/AIDS patients. Methods: Fourteen HIV/AIDS infected patients taken by simple random sampling were enrolled in this research. Fourteen persons having a high risk of HIV infection, but still nonreactive, as revealed in HIV serology test, served as control. All subjects and controls were subjected to three-times examinations for Hsp70, T lymphocytes DNA fragmentation, lymphocytes and CD4 count. The first examination (day 0) was done two hours after the signing of informed consent while the patients still did not know about their HIV infection status. The second examination (day 7) was carried out when the patients were in acute stress condition after HIV/AIDS infection diagnosis was informed. At the third examination (day 31), the patients were in chronic stress condition and showed acceptance of this disease. The results of this research were analysed by multivariate analysis. Results: The first examination revealed that CD4 decreased both in HIV/AIDS infection and non-HIV/AIDS infection group of less than 1000 cells/mm3. The decrease progression in the HIV/AIDS group is faster than that in non HIV/AIDS infection. This study demonstrated that in HIV/AIDS infection group Hsp70 had a higher level than that in non HIV/AIDS infection. The result of the second examination showed that besides the difference of CD4 count in two groups, Hsp70 level increases. It was not only stimulated by biological stress HIV to lymphocytes, but also to other immune cells. Hsp70 level in the second examination was higher than that in the first examination. The result of the third examination revealed that Hsp70 level could be readily produced in large amount and it is enhanced by the CD4 expression cells from the two groups. Hsp70 level increased significantly in HIV/AIDS group, more than that in non HIV/AIDS infection at day 31. Hsp70 level in HIV/AIDS group tended to increase from first, second and third examination, i.e., 1.3007 ± 0.6904 vs 1.5757 ± 0.8127 vs 1.6907 ± 0.9175 respectively. This research demonstrated a trend of increasing Hsp70 level from acute to chronic stress in HIV/AIDS infection. In this research T lymphocytes DNA fragmentation was found to have less significant difference between HIV/AIDS and non HIV/AIDS group. In conclusion, this study demonstrated that Hsp70 expression can inhibit DNA fragmentation in HIV/AIDS infection.

Keyword: apoptosis, T, lymphocytes, HIV/AIDS, Hsp70, expression,