4036437 SCMI/M : MAJOR: MICROBIOLOGY; M.Sc. (MICROBIOLOGY)
KEY WORD : HIV/ AIDS/ PEDIATRIC/ CO-STIMULATORY/ TELOMERE
BENJAMAS AIAMKITSUMRIT: IDENTIFICATION OF IMMUNOLOGICAL FACTORS WHICH DETERMINE DISEASE PROGRESSION IN PEDIATRIC AIDS IN THAILAND. THESIS ADVISOR: SUKATHIDA UBOL, Ph.D., MOLVIBHA VONGSAKUL, Ph.D., KOVIT PATTANAPANYASAT, Ph.D., SAYOMPORN SIRINAVIN, M.D. 154 p. ISBN 974-664-717-2

Human Immunodeficiency Virus Type 1 infection reveals the different patterns of disease progression, especially in children. HIV-infected children represent the disease progression more rapidly than do adults, due to the maturity of immune system, incubation period including property of virus itself. Most of the information come from studying HIV-infected adults, however, the mechanism of disease progression remains to be controversial.

The present study investigated the immunological factors, which determine disease progression in pediatric AIDS in Thailand. This study focused only on cellular immune function by determination of co-stimulatory molecule expression on T cells, B cells and monocytes. The presence of co-stimulatory molecules was detected by dual staining with specific mAbs, followed by flow cytometry.

The results of this study were as follows: First, symptomatic HIV-infected children exhibited higher amount of CD80 positive B lymphocyte than did the control. In the same group, the expressions of CD80 on monocyte and CD28 on T lymphocyte were significantly diminished when compared to the non-infected control. Second, mild/asymptomatic disease progressor represented a significant reduction of both CD80 on monocyte and CD28 on T lymphocyte expressions whereas the amount of CD80 molecule on B-lymphocytes did not differ in the healthy control. Lastly, CTLA-4 or CD152 expression on T lymphocyte of all HIV-infected children was not different in the non-infected control.

In addition, a further study in replicative senescence of immune cells was also performed by Southern hybridization. $CD4^+$ and $CD8^+$ T cells of HIV-infected children showed a significant decrease in Telomere Restriction Fragment (TRF) length, when compared to the healthy control. Remarkably, $CD14^+$ cells of all HIV-infected children did not show a different TRF length from that of the control.

This finding suggests that impairment of co-stimulatory mediated immune response and immunosenescence play a role in HIV disease progressions and may lead to immunodeficiency in AIDS children.