Role of Interferon-Gamma in Immune Response Regulation HIV and HIV + TBC Infected Patients

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Introduction. TB is the most common opportunistic infection affecting HIV-seropositive individuals and it remains the most common cause of death in patients with AIDS. *M. tuberculosis* and HIV act in synergy, it is a global health problem accelerating the decline of immunological functions and leading to subsequent death if untreated. The mechanisms behind the breakdown of the immune defense of the co-infected individual are not well known. However, it is known that host protective immune response against this pathogen is mediated by cellular immunity, in which certain cytokines and Th1 cells have a critical role.

Aim, Material and Methods. The aim of the study was to investigate the role of IFN-γ in interaction between IL-10, IL-18, IL-1b and CD4 cell count in the development of HIV-1 in patients co-infected with *M. tuberculosis*. This study was conducted by RECUH LCI HIV Registries. 200 HIV-1 infected patients and 184 HIV-1 with TB co-infection patients divided in four groups. IFN-Gamma, IL-10, IL-18, IL-1b levels were measured in serum with commercially enzyme-linked immunosorbent assay. CD4 cell count was measured by flow Partec IVD cytometry. HIV-1 RNA quantification was performed by COBAS AmpliPrep/COBAS Taqman HIV-1 Test.

Results. All groups were compared with each another. It was noted that IFN-γ production was significantly reduced, whereas production of both IL-18 and IL-10 were significantly elevated in HIV without TB patients compared with other groups. Group with HIV +TB of greater than 5 years duration showed significantly elevated IL-18 production, CD4 cell count and HIV RNA in comparison with data from other groups. However, HIV patients with primary TB have shown significantly elevated IFN-g and IL-18 production, CD4 cell count and significantly reduced IL-10 production.

Conclusions. Our findings have shown that increased IL-18 levels significantly reduce CD4 cell count in HIV patients co-infected with TB. IFN-γ in HIV with primary TB group was highly correlated with HIV-1 RNA viral load and CD4 cell count.

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