

**INTERFERON- γ AND INTERLEUKIN-4 IN HIV INFECTED PATIENTS
UNDER AMPATH PROGRAM WITH MYCOBACTERIUM TUBERCULOSIS
AT THE MOI TEACHING AND REFERRAL HOSPITAL, ELDORET, KENYA.**

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ABSTRACT

In tuberculosis, cellular immunity is considered to be responsible for the eradication of infection in animal models, the balance between Th1-type cytokines, especially interferon gamma (IFN- γ), and Th2-type cytokines, primarily interleukin (IL-4), seems crucial for these effects. Reports on Th1-type and Th2-type cytokines in human tuberculosis are conflicting. The Th1/Th2 cytokines balance is crucial determinant of pathology in both HIV-Aids and tuberculosis patients because protective immunity in TB depends on a cellular host response, with an important role for CD4 T- helper cells.

Study objectives

To determine Th1/Th2 shift in HIV-1 infected MTB patients under AMPATH program in MTRH.

Methodology: This was a cross-sectional study where 21 HIV-1 infected patients with MTB attending the MTRH AMPATH clinic consecutively over a period of three months and newly diagnosed with pulmonary tuberculosis and who were eligible for the study gave informed consent. CD4 /CD8 counts were determined using TriTEST CD3 FITC/CD4 PE/CD45 PerCP test. IFN- γ and IL-4 Cytokines level were analyzed using BDTM Cytometric Bead Array and viral loads determined using COBAS TaqMan HIV-1 Test kit.

Results: In patients with CD4 counts <200 cells/ μ l the plasma levels of IFN- γ (median 19.8pg/ml) were significantly lower than that measured in patients with CD4 counts >200 cells/ μ l (median 29.8pg/ml). IL-4 levels in patients with <200 cells / μ l were (median 48pg/ml) higher than those with CD4 >200 cells/ μ l (median 36.6pg/ml). Patients with CD4 <200 cells/ μ l, had a statistically significant correlation between IL-4 and Viral load ($r=0.812$, $p=0.004$). Patients with CD4 ≥ 200 cells/ μ l, had a statistically significant correlation between IL-4 and viral load ($r=0.802$ $p=0.004$).

There was a significant correlation between IFN- γ and HIV viral loads ($r=0.792$, $p=0.004$) and between IFN- γ and IL-4 ($r=0.679$, $p=0.022$) were significant

Conclusion: There is a reduction in the levels of IFN γ in HIV infected patients who are smear positive for MTB and CD4 counts below 200 cells/ μ l compared to those with CD4 above 200 cells/ μ l while the levels of IL-4 are higher in patients with <200 cells/ μ l than those with CD4 >200 cells/ μ l.