Anti-Inflammatory cytokines and haematological indices in hiv seropositive adults with uncomplicated plasmodium falciparum malaria.

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Objectives

This study was to determine the levels of anti-inflammatory cytokines, Interleukin-4 and Iinterleukin-10, in a heterogeneous group of HIV seropositive patients with uncomplicated *Plasmodium falciparum* malaria as well as haematological parameters.

Methods

- Malaria parasites screening
- Thick blood films were made on a clean glass slide and stained with Giemsa stain for 15 minutes. The slides were air – dried and examined under X100 objective microscope objective lens for characteristic features of malaria parasites

- Cytokine assay
- Interferon γ and interleukin -2 cytokines levels were assayed using Enzyme Linked Immunosorbent Assays (ELISA or EIA) 11 reagents from MABTECH Inc. Company, Sweden.

- CD4/CD8 Count
- The CD4 and CD8 count were estimated using Dynabeads T4 -T8 Quantification Protocol (Dynal Biotech ASA, Oslo, Norway)

Results

- IL-4 and IL-10 levels were significantly higher in malaria patients against the levels obtained in HIV and malaria-HIV confected subjects ($P<0.05$). On the other hand, CD4 and CD8 count (1434±331.05 and 2003±405.73 cells/µl respectively) of malaria infected individuals were significantly elevated ($P<0.05$).

Table 1: Mean comparison of IL-4, IL-10 and haematological indices of HIV, Malaria and Malaria coinfected subjects.

Cytokines	Malaria	MHIV	HIV	Control
IL4(pg/ml)	8.18±6.41[a]	4.415±3.230[b]	5.208±1.693[b]	5.846±1.819[b]
IL10(pg/ml)	26.29±12.08[a]	4.33±10.39[b]	6.86±10.98[b]	26.008±13.23[a]
CD4 (cells/µl)	1434±331.05[a]	207.0±841.09[b]	274±465.08[b]	1314±207.03[a]
CD8(cells/µl)	2003±405.73[a]	275±204.45[b]	317±111.00[b]	1073±119.13[c]
TWBC(cells/mm^3)	10036±574.71[a]	2354±3144.14[a]	3973±2980.48[b]	5580.58±4567.21[a]
NEUT (%)	46±63.05	44.25±20.62	27.60±7.7	42.20±29.90
LYMP(%)	48±03.18	50.75±11.84	60.80±5.761	57.80±9.203
MONO(%)	5±2.59[b]	5.270±8.697[b]	8.60±2.607[b]	1.80±0.836[a]
EOS(%)	1±1.06	1.250±1.258	5.80±1.304	0.50±0.00
PCV(%)	35±7.65	30.75±4.50	32.80±5.674	41.80±8.490

Discussion & Conclusions

- This study revealed that the mean IL-4 and IL-10 was significantly higher in malaria patients than the levels obtained in HIV and malaria-HIV coinfected subjects ($P<0.05$).
- Torre *et al.* reported that IL- 4 and IL-10 seem not to be involved.
- Wrinkler *et al.* have shown a more pronounced Th2-driven immune response.
- The lowered levels of Th2 obtained in HIV and malaria HIV coinfected individuals could be associated with the CD4 and other cells depletion in these group of subjects.

Discussion & Conclusions

- Several members of the cytokine network have been found to play an important role in controlling the replication of the human immunodeficiency virus (HIV) in several experimental systems.
- Their effects can be categorized in the following three functional groups: (1) HIV-inductive cytokines; (2) HIV-suppressive cytokines; (3) cytokines with both activating and inhibiting capacities.
- An adequate immune response results from interplay of both Th1 and Th2 cytokines. The biological function of any of the cytokines can not be undermined.
- Cytokine profile could account among the markers in the management of HIV/AIDS and other AIDS related illnesses.

Future perspectives

- The pathophysiology of some cytokines have been reported as well as their immunotherapeutic functions.
- There is urgent need to investigate the functions and roles of other cytokines as it relates to morbidities in HIV and or malaria, e.g. blurred vision and transient loss of sight in severe malaria infection, epilepsy etc… as well as their immunotherapeutic uses.

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