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Study of cytokine profiles in HIV/AIDS patients in India

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Objectives: A switch from a T helper 1 (Th1) to a Th2 cytokine has been proposed as an important factor in progression of HIV infection to AIDS. Hence our objectives were to analyze the levels of Th1 (IL-2, IFN-γ) and Th2 (IL-4, IL-10) cytokines and their correlation with clinical and immunological profiles in symptomatic and asymptomatic HIV/AIDS patients.

Methods: We studied four group of patients; symptomatic HIV positive (n=234) (Case group), asymptomatic HIV positive (n=50), symptomatic HIV negative (n=50) and healthy controls (n=50). CD4+T cell count was determined by flow cytometry using Fluorescent Activated Cell Sorter Count system. Quantitative determination of cytokines (Th1 subtype: IL-2, IFN-γ & Th2 subtype: IL-4, IL-10) was done by ELISA.

Results: Patients (08-68 years) had CD4+T cell counts ranged from 16-1033cells/µl. The median CD4+T cell count was 204.50cells/µl and the mean was 265.48cells/µl. The concentration of IL-2 and IFN-γ were significantly lower in case group compared to asymptomatic HIV patients ($P<0.001$) while the IL-4 in symptomatic HIV negative was higher than healthy controls and case group compared to asymptomatic HIV patients. Concentration of IL-10 was also higher in case group compared to asymptomatic HIV patients. A positive correlation was found between IL-4, IFN-γ, IL-2 with CD4+T cells and a negative correlation between IL-10 & CD4+T cells among the Case group.

Conclusions: A decline in type-1 cytokines (IFN-γ, IL-2) and rise in type-2 cytokines (IL-4, IL-10) was observed in symptomatic HIV/AIDS patients in comparison to asymptomatic HIV/AIDS patients suggesting a shift from Th1 to Th2 type cytokine response.

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Isolation, identification of virulence factors and antibiotic resistance characterization of *Candida* species in Karachi, Pakistan

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Candida albicans is a commensal and opportunistic pathogenic agent that causes infection in immune compromised individuals. Several attributes contribute to the virulence and pathogenicity of this yeast, including the production of germ tubes formation in serum or plasma bio film production and extracellular hydrolytic enzymes, particularly phospholipase, estrase and hemolysins. This study aimed to investigate the production of phospholipase, hemolysin and bio-film formation activities in HVS and urine clinical isolates. *C. albicans* and non-*albicans* both will be compared by the evaluation of their virulence attributes. *Candida* has been recovered from several body sites in many populations; it is most often recovered from mucocutaneous surfaces of immune compromised patients. *C. albicans* isolates produce higher amounts of enzymes than *C. tropicalis* and *C. glabrata*. Urine and HVS samples will collect from 50 patients. Samples will culture on Sabouraud dextrose agar (SDA) for diagnosis of *Candida*. After gram staining and germ tube test performance we will subculture on: CHROM agar (CMA) for species identification .Carbohydrate assimilation test will also perform for species identification and confirmation. *C. albicans* is the most frequent species isolate responsible for fungal urinary tract infections and vulvo-vaginal Candiasis (VVC). However, non-*albicans* species *C. glabrata, C. tropicalis* and *C. krusei* isolates are also reported.

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