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C-reactive protein as an early marker of opportunistic infections in HIV

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Opportunistic infections account for the majority of death in untreated patients with AIDS. CRP is a highly sensitive marker of infection & inflammation and its level increase with infection. The present Study was undertaken among 100 HIV+ patients, at ART center Victoria Hospital Bangalore. With the informed consent of the patient, a generalized proforma was filled up consisting of patient's clinical presentation and diagnosis. Their CRP level and CD4 count were measured. 56 HIV+ patients were asymptomatic and acted as control giving a negative test for CRP (<6mg/l), showing no base line rise in CRP. Patients with infectious diagnosis showed a positive test for CRP, while patients on treatment were negative. Among the infectious cases, bacterial infection showed high level of CRP (mean 32mg/l) compared to viral/fungal infection (mean 9mg/l). Combinations of opportunistic infections produced a high level of CRP (mean 45mg/l). A graph of CRP along x-axis and CD4 count along Y-axis were plotted which showed a negative correlation (r=-0.2324, p<0.01 and lzl=2.40). From the graph, the CRP level at which ART can be started is >92.413mg/l [taking <200 (cells/µl) as the CD4 count at which ART is started]. Patients showing negative tsest for CRP need not be started with ART, as their CD4 count is found to be approximately 329 cells/µl. CRP level in *HIV* patients has a prognostic significance and can be used as an early marker of Opportunistic infections.

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Deciphering the anti-tuberculosis activity of plant extracts and their synergistic effect with widely used anti-tuberculosis drugs

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Tuberculosis(TB), is caused by *Mycobacterium tuberculosis*. Despite of significant advancement in medical science, it is still one of the leading causes of death and illness worldwide. According to latest WHO global tuberculosis report 2015, approximately 9.6 million people get sick with TB and an estimated 1.6 million died from this disease in 2014 which is even more that HIV/AIDS (1.2 million) (WHO Report, 2015). At present, four first line antibiotics (Rifampicin, Ethambutol, Isoniazid and Pyrazinamide) are being widely used to treat TB under DOTs. Most of the anti TB drugs except streptomycin are reported to cause hepatotoxicity. This is the major cause of discontinuity of DOTs treatment by patients with low income and major factor in emergence of antibiotic resistant strains (MDR and XDR) of *M. tuberculosis*. Approximately, 60% of the world's population still relies on medicinal plants for their primary healthcare. Several plant extracts demonstrated antimycobacterium activity. Therefore in the present investigation, we studied the synergistic effect of some plant extracts/phytochemicals along with the Isoniazid and rifampicin. The *M. tuberculosis* H37Ra was used as model organism. *A. vera, A. sativum, A. cepa* and *A. indica* demonstrated the antituberculosis activity. IC50 of antibiotics and plant extracts were determined using resazurine. *A. sativum* and *A. indica* demonstrated synergistic effect with isoniazid and rifampicin. Further studies in animal using *M. tuberculosis* H37Rv are needed to validate these findings.

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