Tuberculosis (TB) continues to be a major worldwide health problem and kills millions of people around the world. Lack of compliance to the strenuous multi-drug therapy regimen has resulted in multidrug-resistant TB. Hence novel drug targets are urgently needed to prevent and treat this killer disease. Mycobacterium tuberculosis, the causative agent of tuberculosis, requires iron for essential metabolic pathways. Because iron is not freely available in the host, pathogens must actively acquire this metal to establish an infection but they must also carefully regulate iron acquisition as excess free iron can be extremely toxic to the bacteria. Recent studies have demonstrated that failure to control iron uptake or to assemble the iron acquisition machinery has lethal effects for M. tuberculosis. In M. tuberculosis, the iron-dependent regulator IdeR regulates the expression of genes in response to intracellular iron levels. Loss of IdeR mediated repression leads to iron overload and oxidative damage. In contrast, enhanced IdeR repression at low iron levels attenuates M. tuberculosis virulence in mice.

Sequence comparison shows that orthologs of IdeR are present in all the sequenced genomes of mycobacteria. We have used a bioinformatics approach to characterize structure, function and evolution of the iron dependent regulator protein (IdeR) sequence identified from 16 genomes. Our study shows different levels of sequence conservation in different functional domains of the IdeR molecules. Our study reveals how IdeR selects its DNA targets, how IdeR dimerizes and how iron controls IdeR activity.

This study will help in understanding the basis for different transcriptional responses of pathogenic and non-pathogenic mycobacteria in iron stress, which, in turn, may help in designing better drugs against pathogenic mycobacteria.

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HIV/AIDS Opportunistic Infections (Poster Presentation)

73.001

Association Between Human Immunodeficiency Virus Infection and Cerebral Malaria in Children Below 12 Years Attending Mulago Hospital, Uganda: A Case-Control Study

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Background: Malaria and HIV are important paediatric problems in sub-Saharan Africa. There is hardly any data on association between HIV infection and childhood cerebral malaria

Objective: To determine the association between HIV infection and cerebral malaria in children below 12 years attending Mulago hospital.

Methods: In this unmatched case control study, 352 children were enrolled, 100 with cerebral malaria, 132 with uncomplicated malaria and 120 had no malaria

Results: The overall prevalence of HIV infection among the 352 children was 4.3%. The prevalence of HIV infection in cerebral malaria was 9% compared to 2.3% in those with uncomplicated malaria (OR 4.3 [95% CI = 1.1—16.1] p = 0.022); and 2.5% in children with no malaria (OR 3.9 [95% CI = 1.0—14.7] p = 0.035). Overall, the prevalence of HIV infection in cerebral malaria was 9.0% compared to 2.4% in the two control groups with an odds ratio of 4.1 (p = 0.006; 95% CI = 1.4—11.7). After adjusting for confounding factors, the risk for cerebral malaria in the HIV positive children was 5.7 (95% CI 1.7—19.4) times more than in those who tested HIV-negative.

Conclusion: HIV infection was significantly associated with cerebral malaria in children admitted to Mulago Hospital and the prevalence of HIV infection among those with cerebral malaria was 9%. Recommendation: Malaria prevention should be an important component of education and counselling of HIV infected children and their caretakers. A large study is recommended to establish whether there is a correlation between the level of HIV immunosuppression and cerebral malaria.

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73.002

Hepatitis G Virus Infection in Patients Infected with the Human Immunodeficiency Virus

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Background: Hepatitis G virus (HGV) and human immunodeficiency virus (HIV) show similar modes of transmission. The purpose of this study was to determine the prevalence
and associated factors of HGV infection in HIV infected patients.

Methods: The presence of HGV-RNA was determined in sera of 100 HIV-positive patients with mean age of 36.6 ± 9.6 years by reverse transcriptase-nested polymerase chain reaction. All of cases were also screened for Hepatitis B surface antigen (HBsAg), Hepatitis B surface antibody (anti-HBs), hepatitis C antibody (anti-HCV), HIV viral load and CD4 cell counts.

Results: Prevalence of HGV-RNA was 11% in our subjects. The most common route of HIV acquisition was injection drug use (52%) followed by transmission from infected husband (25%) and IDU and heterosexual contact (6%). The mean CD4 counts of HGV-positive patients were 283.64 ± 108 cells/mm3 and HGV-negative patients were 356.74 ± 186.67 cells/mm3 (not significant). The mean log10 HIV viral load was 2.49 ± 1.94 vs. 1.91 ± 2.04 in HGV-positive and negative patients respectively (not significant). The mean AST levels in the HGV positive and negative patients were 37.8 ± 15.7 IU/l vs. 37.5 ± 31.1 IU/l and for ALT 33.9 ± 20.4 IU/l vs. 36.5 ± 30.7 IU/l, respectively. There was not any significant difference between ALT and AST levels in HGV positive and negative groups. HGV Co-infection with HCV and HBV presented in 7% and 1% of cases respectively. No significant correlation was observed between Co-infection with HBV and HCV in HGV positive and negative subjects. There was no significant difference between the HGV-positive and negative patients regarding to age, sex, route of transmission and taking antiretroviral treatment.

Conclusions: HGV infection was relatively common in our HIV-infected patients and it was frequently observed in patients with older age, lower CD4 cell counts and higher viral load.

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73.003
Frequency of Mycobacterium tuberculosis Infection Among HIV/AIDS Patients in Tehran, Iran
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Keywords: HIV infected patients; Mycobacterium tuberculosis infection; PPD skin test

Objective: This study was done to determine the frequency of tuberculosis infection among patients with HIV/AIDS using PPD skin test as a diagnostic parameter for TB infection.

Methods: A total of 262 HIV/AIDS patients attending the outpatient clinic at the University Hospital Imam-Khomeini (Tehran, Iran) in 2003 were enrolled in this study. By reviewing the patient files, clinical information was recorded

Results: Out of these 262 patients, a total of 63 patients were shown to have tuberculosis infection based on a positive PPD skin test. Of the patients with tuberculosis, 22 (8.4%) had pulmonary tuberculosis, and 2 (1.1%) extrapulmonary tuberculosis. 12.6% had history of long term residency in a foreign country, 51.6% have exposed to an index case, and 33.3% had clinical manifestations while only 14.2% had history of pulmonary tuberculosis. In the present study there were no resistant strains of M. tuberculosis.

Conclusion: We found that more than 24% of patients with HIV/AIDS were infected with M. tuberculosis in Tehran. It becomes evident the need to improve the preventive measures and prompt treatment of this type of infection in the HIV infected individuals.

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73.004
Protein Manifestations of Herpes (HSV) Infection in AIDS Cases
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Objectives: HSV accelerates and facilitates HIV replication and thereby HIV disease progression. Atypical presentations of herpes in HIV positive cases help in suspecting/diagnosing HIV. 32 cases presenting with muco-cutaneous herpes were studied to observe clinical manifestations of herpes in immuno-compromised state due to HIV.

Methods: 32 cases were studied in the Department of Skin & VD, Medical College, Baroda. On the basis of history and clinical features muco-cutaneous herpes was suspected in HIV positive cases which were retrospectively diagnosed on the basis of responsiveness to Acyclovir therapy. All the cases were given Acyclovir and response to treatment was noted on follow up.

Results: Out of 32 cases there were 23 male and 9 female cases. Atypical features observed were nasal bleeding, tongue ulcer, cervical herpess, giant ulcer over sacral region, giant ulcer over vulva, herpes esophagitis and herpetic whitlow. In one patient Kaposi's Vericiliform eruption was observed. All the cases responded to Acyclovir therapy, none of them were on Antiretroviral Therapy (ART).

Conclusions: Diagnosis of herpes requires high index of suspicion particularly in atypical presentation and subclinical reactivation. Prompt diagnosis of atypical herpes screening of females for cryptic herpes and early institutionalization of Acyclovir will be of immense benefit to the patients particularly not on ART.

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