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375. Cryptococcal Antigenemia in Advanced HIV Infection

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Background. Diagnostic importance of asymptomatic cryptococcal antigenemia is being increasingly recognized in the last few years. Recently, WHO (World Health Organization) has recommended routine screening of CrAg (cryptococcal antigen) among PLHA with CD4 \leq 100/mm³, albeit this procedure is not yet adopted by many developing countries including India.

Methods. We conducted a prospective observational study in a large tertiary care center of North India, upon ethical clearance. Latex agglutination test was performed to assess serum CrAg levels, followed by the lumbar puncture for detection of CrAg levels in the CSF. We analyzed the prevalence and treatment outcomes of cryptococcal antigenemia among PLHA with CD4 \leq 100 cells/mm³. Detailed clinical examination was conducted, with follow-up of upto 3 months. Multivariate analysis was performed for the estimation of risk factors.

Results. The mean age (years) and BMI (kg/m²) of all the participants were 41.4 ± 11.2 and 22.1 ± 2.6, respectively. Notably, the mean CD4 count (cu.mm) at the time of recruitment was 62.3 ± 20.5. Noteworthy, 62 (60.8%) of the patients were ART naïve. We found 9.8% (n = 10) of the patients were positive for serum CrAg, and only 2.9% (n = 3) had clinical features of meningitis and 6.8% (n = 7) were asymptomatic (subclinical) CrAg positive. Strikingly, 3.9% (n = 4) of the asymptomatic cryptococcal antigenemia patients were also positive for CrAg in CSF, with 1.9% (n = 2) were only serum CrAg positive, and 1 patient was lost to follow-up (Graph 1). Multivariate analysis revealed that patients with long duration of HIV (P = 0.04), headache symptoms (P = 0.004) and possessing features of meningismus (P value=0.08) are more likely to be CrAg positive. Conversely, patients on fluconazole were protective against cryptococcal antigenemia (P = 0.1) as shown in Table 1. Overall mortality observed was 11.3% among advanced HIV patients. Moreover, mortality in CrAg-positive patients was 33.3% in comparison to CrAg-negative patients who had 9% (P = 0.06) in 3-months follow-up.

Conclusion. Cryptococcal antigenemia is common (9.8%) among patients with CD4 count ≤ 100 /mm³ in India. Screening for CrAg should be made routine for PLHA with CD4 count ≤ 100 /mm³ and if required preemptive treatment to be given in this regard.



Variables	P value	aOR (95% CI)
Duration of diagnosis	0.04	0.3 (0.09,0.9)
Headache	0.004	25.9 (2.8,235)
Nausea	0.13	0.08 (0.03,2)
Meningismus	0.08	7078
On Fluconazole	0.1	0.12 (0.01,1.5)

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376. Effect of Parasitic Infections on Gut Epithelial Barrier and Immune Activation among Foreign-Born HIV-infected Patients

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Background. Strongyloides stercoralis often causes an asymptomatic infection despite continuous autoinfection for the lifetime of the host. Both HIV and recurrent enteric parasitic infections cause gut damage and increased microbial translocation, but little is known about the effects of co-infection. We aimed to evaluate changes in immune activation, mucosal damage, and microbial translocation in people with HIV-1 (PWH) and parasite co-infection.

Methods. In this pilot prospective cohort study, we enrolled foreign-born PWH on suppressive antiretroviral therapy (ART) in an ambulatory clinic in Houston, Texas. We evaluated serum *Strongyloides* IgG using ELISA with an *S. stercoralis*-specific recombinant protein. Intestinal fatty acid-binding protein (I-FABP), soluble CD14 (sCD14), sCD163, IL-6, and sTNFRII were analyzed as markers of enterocyte turnover, inflammation, and immune activation. Non-parametric tests were used for analysis.

Results. 52 participants born in 14 countries were enrolled February–March 2019. Median CD4 count was 464/uL [95% CI 315–598]. Fourteen (27%) were positive for *Strongyloides* IgG. *Strongyloides* IgG levels correlated positively with sCD14 levels [r=0.36; P = 0.008]. *Strongyloides* + participants had significantly higher sCD14 levels compared with Strongyloides- participants [1.67 vs. 1.48 µg/mL, P = 0.031]. Among the *Strongyloides* + participants, Strongyloides IgG levels correlated with sCD163 levels [r=0.65, P = 0.026]. There were no difference in the other biomarkers. Logistical regression analysis showed that predictors of *Strongyloides*+ include absolute eosinophil count (AEC) (OR 1.45 for every 100 increase of AEC [95% CI: 1.02, 2.15; P = 0.047]). CD4 count, number of years living in the United States, country of origin, and years from HIV diagnosis were not associated with test positivity.

Conclusion. Strongyloides co-infection is common among foreign-born PWH and may contribute to chronic monocyte/macrophage activation, a predictor of morbidity and mortality in PWH. Future directions include stool PCR confirmation of these infections, continued enrollment, and follow-up assays 6 months after treatment of *Strongyloides* to determine the impact on inflammation and risk of co-morbidities.

Graph 1. Correlation of level of sCD14 (ug/ml) with Strongyloides IgG (units/ml)



Graph 2. Comparison of sCD14(ug/ml) in <u>Stronglyoides+</u> and <u>Strongyloides-</u> patients.



Graph 3. Correlation of level of sCD163 (ug/ml) and *Strongyloides* IgG (units/ml) among *Strongyloides*+ patients



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377. Diagnostic Yield of Bone Marrow Aspiration and Biopsy in Human Immunodeficiency Virus Patients with Fever and/or Cytopenia

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Background. Human Immunodeficiency Virus (HIV) patients are at increased risk of opportunistic infections and malignancies. Evaluation for the etiology of fever and/or cytopenia with conventional means such as cultures and serology can remain negative. Bone marrow aspiration or biopsy (BMAB) has the advantage of diagnosing disseminated infections, hematological abnormalities and oncological malignancies in HIV patients.

Methods. We performed a retrospective descriptive study of HIV patients with fever and/ or cytopenia who underwent Bone marrow aspiration or biopsy (BMAB). Patients with a diagnosis of HIV, 18 years and older who underwent BMAB in University Health (UH) Hospital or in UH clinics from January 2012 to February 2018 were included.

Results. There were a total of 42 patients who underwent Bone Marrow Aspiration or Biopsy. The median age was 41.5 years. Twenty-eight patients were Male and 14 were female. Preexisting Hematological malignancy was present in 10 patients at the time of BMAB. Average CD4 count at the time of BMAB was 92. 8 patients were compliant with ART and 12 patients were compliant with clinic appointments. White Blood Cell (WBC) count below 4.4 cells / L was present in 30 patients at the time of BMAB. Disseminated Mycobacterium Avium Complex infection (2 patients), Disseminated Histoplasmosis (2 patients), Disseminated Cryptococcus (1 patient) and Parvovirus B19 (based on Immunohistochemistry, 1 patient) were diagnosed from BMAB. CD4 count of these 6 patients range from 0 to 12 at the time of BMAB. All 6 patients presented to the hospital with fever for evaluation. Average WBC count, Hemoglobin and platelet count in these patients are 4.1 cells / liter, 8.7 g/dL and 74.8 k/micro liter, respectively. All 6 patients were non compliant to HIV medications and clinic appointments.

Conclusion. Since the advent of Anti Retroviral drugs with excellent efficacy and early diagnosis of HIV patients, incidence of disseminated fungal and mycobacterial infections have decreased in the United States. But patients with low CD4 count and cytopenias warrant a Bone Marrow aspiration or Biopsy to make a clear and early diagnosis.

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378. Seroprevalence of *Helicobacter pylori* among HIV-Infected Patients in a Tertiary Care Hospital in Busan, South Korea

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Background. As human immunodeficiency virus (HIV) management has become more successful during the past years, the importance of non-AIDS-defining cancer such as gastric cancer has increased. Gastric cancer is the second most common cancer, and the third leading cause of cancer-related deaths in South Korea. Chronic inflammation of the gastric mucosa with Helicobacter pylori (H. pylori) is associated with gastric cancer, the highest incidence of which is observed in South Korea. The objective of this study was to evaluate the seroprevalence and risk factors of H. pylori infection in Korean HIV-infected patients.

Methods. In a hospital-based survey, HIV-infected patients attending Outpatient Department of Pusan National University Hospital were enrolled between October 2018 and January 2019. Socio-demographic information was evaluated using question-naires, serological status of H. pylori infection was tested with commercial H. pylori serology kits (Helicobacter pylori IgG ELISA, IBL, Germany).

Results. A total of 302 patients were included in the study. Two hundred and Sixty-one patients (86.4%) were males and 41 (13.6%) were females. Their median age was 54 years (range, 23–81 years), median CD4+ count was 667 /µL (7–1,699 /µL). The overall scropositivity of H. pylori in HIV-infected patients was 30.1%. Age-specific scroprevalence was as follows: 20–29 years, 12.5%; 30–39 years, 15.6%; 40–49 years, 38.6%; 50–59 years, 36.2%; 60–69 years, 27.9%; and ≥70 years, 18.2%. A lower sero-prevalence of H. pylori was observed among patients younger than 40 years; however, it was not significant (*P* = 0.063). The risk factors associated with H. pylori seropositivity were alcohol consumption [adjusted odds ratio (OR): 1.99, 95% confidence interval (CI): 1.17 to 3.39; *P* = 0.011] and CD4 cell count ≥350/µL (OR = 4.32; 95% CI 1.51–12.36; *P* = 0.006).

Conclusion. HIV-infected patients had a lower seroprevalence of H. pylori compared with general population (30.1% vs. 49.1%). Alcohol consumption and CD4 cell count \geq 350/µL were significantly associated with H. pylori seropositivity.

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379. Clinical Management of HIV-associated *Pneumocystis jirovecii* Pneumonia in Rural Nigerian Communities: Public Health Interventions and Impact Ozioma Onokala, Master of Pharmacy Degree;

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Background. The prevalence of *Pneumocystis jirovecii* Pneumonia (PJP) is increasing among vulnerable Persons Living with HIV (PLWH) in rural communities. In such communities, optimum clinical management of PJP in PLWH, is often limited by sub-optimal coordination of healthcare programs and inadequate human resources. The study evaluated the impact of interventions implemented by public health programs, to improve the clinical management of PJP among PLWH in rural Nigerian communities.

Methods. The longitudinal study was done at 30 randomly selected rural communities in Nigeria. Program interventions included: decentralization of comprehensive Anti-Retroviral Therapy (ART) to primary healthcare facilities; and strategic private–public partnerships to ensure provision of free medications for ART and prophylaxis/ treatment of PJP, (according to National Treatment Guidelines). Additional interventions included: training of indigenous healthcare workers on clinical management of PJP; task-shifting; routine monitoring and evaluation of PJP indicators to ensure program quality, among others. Real-time data from Patients' Care Cards were utilized for pre- and post-intervention assessments in January 2014 and January 2019, respectively. Chi-square was applied as inferential statistics; P < 0.05 indicated statistical significance.

Results. The number of PLWH on ART, who received primary PJP prophylaxis with Trimethoprim-Sulfamethoxazole (TMP-SMX), increased from 2,280 (pre-intervention) to 14,461 (post-intervention). PLWH (55 females; 40 males), exhibited TMP-SMX intolerance and were offered Dapsone for primary PJP prophylaxis. PJP diagnosis and treatment for female PLWH increased from 5% (pre-intervention), to 82% (post-intervention). PJP diagnosis and treatment for male PLWH increased from 3% (pre-intervention), to 79% (post-intervention). Incidences of PJP increased with age, viral load, ART interruption, and late presentation to HIV care. Secondary PJP prophylaxis for PLWH (after the completion of pneumonia treatment) increased from 2% (pre-intervention) to 90% (post-intervention).

Conclusion. The interventions significantly improved the clinical management of PJP in PLWH. They are recommended for implementation by health programs in rural communities.

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380. Characterizing Host Factors, Treatment Strategy, and Clinical Outcomes of Group A Streptococcus Orthopedic Infections

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Background. The annual incidence of invasive β -hemolytic group A streptococcus (GAS) infections in the United States is approximately 3.8 cases per 100,000 patients with 10–30% mortality. But data in GAS orthopedic infections is limited. We sought to characterize patient factors, medical and surgical management, and clinical outcomes from GAS orthopedic infections at our medical center.

Methods. A total of 12 patients with GAS orthopedic infections (necrotizing fasciitis, osteomyelitis, prosthetic joint infection, septic arthritis, or tenosynovitis) from