755. Posaconazole versus voriconazole as antifungal prophylaxis for invasive fungal diseases in patients with hematological malignancies

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Session: P-30. Eukaryotic Diagnostics

Background: The incidence of Invasive Fungal Diseases (IFDs) has dramatically increased in patients with hematologic malignancies due to prolonged neutropenia. IFDs are associated with significant morbidity and mortality. Due to these risks, international guidelines have recommended antifungal prophylaxis for Acute Myeloid Leukemia (AML) and Myelodysplastic syndromes (MDS) patients. Posaconazole has been recommended as the prophylactic agent of choice. Also, voriconazole has been recommended by guidelines with different levels of recommendations. Data on a direct comparison between Posaconazole delayed-release tablets (DR) and Voriconazole for IFD prophylaxis are lacking. Therefore, we aim to compare the efficacy and safety of the fungal prophylaxis; voriconazole versus posaconazole in AML/MDS patients at Princess Nourah Oncology Center, Jeddah

Methods: Retrospective chart review study for eligible patients from January 2017 to February 2019 to identify the breakthrough IFD rates and assess the frequency of adverse events within AML/MDS patients at PNOC, Saudi Arabia

Results: A total of 48 patients (130 chemo cycles) were included in the study: 50 using posaconazole (DR) and 80 using oral voriconazole as antifungal prophylaxis. The incidence rates of IFD in the posaconazole group was 8 % (4/50) of those 2 were probable, and 2 were possible infections while 6.26 % (5/80) of patients in the voriconazole group have developed IFD of them 4 had a possible infection, and one had a probable infection (p=0.7325). A higher percentage of patients in the voriconazole group discontinued prophylaxis due to adverse events (5 patients vs. 2 patients). Use of voriconazole as antifungal prophylaxis for 15 days in 130 cycles in 48 AML/MDS patients would cost 175,500 SR in comparison to the cost of the posaconazole for the same duration of 1,350,130 SR. So, use of voriconazole would save 1.13 million SR and is more cost effective when used as antifungal prophylaxis in AML/MDS patients in comparison to posaconazole although later is category 1 recommended antifungal prophylaxis in international guidelines

Conclusion: Our study has shown that both posaconazole and voriconazole have comparable efficacy and safety in the prevention of IFD in AML and MDS receiving chemotherapy but voriconazole is more cost effective

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756. Use Risk Factors to Early Screen Pneumocystis Pneumonia in Hospitalized Patients

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Session: P-30. Eukaryotic Diagnostics

Background: The diagnosis of Pneumocystis pneumonia (PCP) may be delayed or missed if the underlying risk factors are not recognized, particularly in HIV-uninfected patients.

Methods: The adult hospitalized patients (≥18 years) with pneumonia were selected from the Nationwide Inpatient Sample database (2005-2014). The in-hospital outcomes of PCP patients including mortality, length of hospital stay (LOS) and charge were analyzed. The risk factors for PCP were evaluated by Logistic regression. A risk-adjusted model to screen PCP in HIV-uninfected patients was developed by discriminant analysis.

Results: 24,025,696 hospitalized patients with pneumonia were identified, including 135,749 PCP patients. The incidences of PCP in pneumonia patients were 0.12% in HIV-uninfected group and 30.5% in HIV-infected group respectively. Comparing with other pneumonia patients, those with PCP had higher mortality (11.8% vs. 8.2%), longer LOS (median 8 vs. 5 days) and increased hospital charges (median $40,082 vs. $26,980). HIV infection was the major risk factor for PCP (OR=270.2, 95% CI 264.5-276) in all patients with pneumonia. In HIV-uninfected patients, the comorbidities including lymphoma (OR=10.7, 95% CI 10.2-11.2), CMV infection (OR=8.1, 95% CI 7.6-8.7), leukemia (OR=6.8, 95% CI 6.4-7.1), metastatic cancer (OR=5.3, 95% CI 4.6-6.0), immune thrombocytopenic purpura (OR=5.0, 95% CI 4.5-5.5), chronic steroid use (OR=4.1, 95% CI 3.9-4.3), solid organ transplant (OR=3.5, 95% CI 3.3-3.8), inflammatory bowel disease (OR=2.6, 95% CI 2.4-2.8), connective tissue disease (OR=2.4, 95% CI 2.3-2.6) and non-metastatic solid tumor (OR=2.3, 95% CI 2.1-2.4) were associated with increased risk for PCP. A risk-adjusted model composed of risk factors above could help to screen PCP with the sensitivity 42.9%, specificity 94.4% and accurate rate 94.3% (Table 1).

Table 1

Table 1 Risk-adjusted model for PCP screening in HIV-uninfected patients with pneumonia

Factors†	Functions *
Connective tissue disease (X_1) Lymphoma (X_2) Metastatic cancer (X_3) Solid tumor without metastasis (X_4) CMV infection (X_5) Inflammatory bowel disease (X_6) Immune thrombocytopenic purpura (X_7) Chronic steroid use (X_8) Solid organ transplant (X_9) Leukemia (X_{10})	PCP= 0.996 x X_1 + 1.006 x X_2 + 1.12 x X_3 + 1.104 x X_4 + 0.566 x X_5 + 0.973 x X_6 + 0.843 x X_7 + 0.813 x X_8 + 0.99 x X_9 + 1.022 x X_{10} -0.782 No PCP= 2.376 x X_1 + 10.89 x X_2 + 2.678 x X_3 + 1.953 x X_4 + 35.399 x X_5 + 3.07 x X_6 + 8.262 x X_7 + 4.478 x X_8 + 5.471 x X_9 + 8.487 x X_{10} -3.638
Sensitivity (95% CI)	42.86% (42.28%-43.45%)
Specificity (95% CI)	94.41% (94.40%-94.42%)
Positive predictive value (95% CI)	0.91% (0.90%-0.92%)
Negative predictive value (95% CI)	99.93% (99.93%-99.93%)
Accuracy (95% CI)	94.34% (94.33%-94.35%)

† Occurrence of the risk factor is assigned a value of "1", whereas nonoccurrence is assigned as "0".
* The model includes 2 functions corresponding to a "PCP" discriminant score and a "No PCP" discriminant score, respectively. Both functions should be used simultaneously to predict whether the PCP occurs or not. The occurrence of PCP or not predicted by the model is determined by which function is found to have a higher discriminant score.

Conclusion: PCP should be considered as one of the differential diagnoses in patients with pneumonia if they have underlying risk factors other than HIV infection. The risk-adjusted model can help to early screen PCP for HIV-uninfected patients before the pathogen test.

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757. Association between cumulative febrile, respiratory and diarrheal illness in the first year of life and neurodevelopmental and growth outcomes among a cohort of children in rural Guatemala

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Session: P-31. Global Health

Background: Recurrent infections are associated with neurodevelopmental (ND) delay in infants, but the primary drivers are poorly understood. Leveraging an infant cohort from rural Guatemala designed to evaluate the effects of post-natal Zika virus on ND (DMID 16-0057), we evaluated the association between cumulative illness and ND delay and stunting.

Methods: Infants enrolled at 0-3 months of age underwent weekly at-home surveillance for caregiver-reported syndromic illness, including cough, fever and vomiting/diarrhea for a 12-month period. Anthropometric assessments and ND testing by Guatemalan psychologists using the Mullen Scales of Early Learning (MSEL) were performmed at 12-15 months of age. Multivariable generalized linear regression models were used to test associations between syndromic illness in infancy, 12-15-month MSEL Early Learning Composite (ELC) Score, and stunting (height-for-age < -2 SD) at 12-15 months.

Results: The cohort (n=425) had a mean enrollment age of 1.3 months; 202 (48%) were female, 387 (91%) self-reported a literate mother, and 301 (71%) were breastfeeding at study completion. Infants had reported illness for a median of 16 weeks during the surveillance period; cough was reported most frequently (median=11 weeks, range=0-37 weeks). Lower maternal education (p=0.007) and literacy (p=0.002) as well as infant age (p=0.007) and male gender (p=0.004) were associated with MSEL ELC

Score <85 (-1 SD). After adjusting for gender, breastfeeding, age, and maternal literacy, the cumulative number of weeks with reported cough (p=0.0009), fever (p=0.0001), or any syndromic illness (p=0.0007) were associated with decreased 12-month MSEL ECL Score; there was no association with diarrhea/vomiting (p=0.36). There was no association between caregiver-reported syndromic illnesses (any type) and stunting at final study visit.

Conclusion: In a cohort of Guatemalan infants, cumulative fever and cough episodes were significantly associated with lower MSEL ELC Score, whereas there was no association with diarrhea/vomiting. In this low-resource community, these findings highlight the potential negative ND consequences of febrile illness and persistent cough in the first year of life. NIAID Contract HHSN272201300015I Task Order HHSN27200013 (Co-PIs: FMM and EJA).

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758. Epidemiology of Tick-Borne Encephalitis (TBE): A Traveler´s Perspective

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Session: P-31. Global Health

Background: Tick-borne Encephalitis (TBE) is a CNS infection caused by the TBE virus (TBEV), transmitted by ticks or by ingestions of unpasteurized dairy products. Persisting sequelae occur in up to 50% of patients and case fatality rates are 0.4-6% (up to 20% in Russia). There is no specific treatment, but prevention exists. New areas of TBEV circulation were recently identified. Here the current distribution of the TBEV by the end of 2019 is summarized.

Methods: Data were obtained from solicitation of local expert data from countries in Europe and Asia on TBEV isolation, type of surveillance/reporting, past/current case counts, and vaccine uptake, supplemented by literature searches. Countries were classified as suggested by the European Centers for Disease Prevention and Control (ECDC) as TBE- "predisposed" (competent ticks present), "imperiled" (TBEV isolated), "affected" (sporadic autochthonous cases) or "endemic" (annually autochthonous cases).

Results: TBE has now been diagnosed in Eurasia from the United Kingdom, Norway and France in the west, northern Italy in the south, central/eastern Europe, Russia, China on to Japan in the east. "New endemic" countries in the last five years include the United Kingdom, the Netherlands, as well as "new endemic regions", e.g. in France, Norway, Germany, Finland and Poland. Six countries are considered as predisposed only, three as imperiled, five as affected and 29 as endemic. Misclassification is likely as some countries have no testing (no test), incomplete testing and/or underreporting.

Conclusion: The main considerations of TBEV risk for oversea travelers to Eurasia are: 1) the exact region and terrain within a country; 2) the planned type of (outdoor) activity; 3) the reliability of within country TBEV surveillance. TBE incidences per region may fluctuate log-fold over just a few years and low reported case counts may reflect a lack of testing, and/or preventive measures including vaccine uptake, and underreporting. As the incidence of TBE is unpredictable, prevention measures should be considered for any person traveling or residing in a recognized TBE "risk area".

Disclosures: **Sarah Pugh, PhD**, **Pfizer** (Employee, Shareholder) **Wilhelm Erber, PhD**, **Pfizer** (Employee, Shareholder) **Andreas Pilz, PhD**, **Pfizer** (Employee, Shareholder) **Heinz-Josef Schmitt, MD**, **Pfizer** (Employee, Shareholder)

759. Where can we find active TB? Case finding at community sites and alcohol based venues (ABVs) in rural South Africa.

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Session: P-31. Global Health

Background: Community-based intensive case finding (CBICF) is an effective strategy for infectious disease case detection, particularly for hard-to-reach populations. Alcohol use is increasingly recognized as a risk factor for tuberculosis. We report on the association of alcohol use with tuberculosis case detection as part of a CBICF in a rural resource limited setting.

Methods: In rural KwaZuluNatal, South Africa, community health workers stationed outside ABVs, community centers, and public events conducted health education and voluntary confidential screening in a mobile clinic. A WHO endorsed TB symptom screen (with sputum collection for GeneXpert if ≥1 symptom), HIV rapid test, random glucose (elevated >7mmol/L), and blood pressure (elevated >140 or >90mmHg) were offered. Community members with positive results were referred to their primary care clinic. Alcohol Use Disorder Identification Test (AUDIT) was used to identify hazardous drinking (score ≥8for men, ≥6for women). Here we report on TB screening results only.

Results: Among 1438 participants, 91.2% were screened at ABV, 72.3% were male, median age was 30 (IQR 22-46), 25.9% were employed, 92.0% had electricity but only 29.4% had running water. Among those screened at all sites, 43.1% reported hazardous alcohol use, 39.3% tobacco use, and 13.9% cannabis use. Overall, 5 people with active TB were identified representing a number needed to screen of 288 to identify one case of TB. Bivariate analysis showed TB cases were more likely to be associated with older age (p=0.03), cigarette use (p=0.06), and hazardous alcohol use (p=0.01). Among only men who were screened, older age (p=0.01) and hazardous alcohol use (p=0.04) were associated with active TB disease. The mean AUDIT score among TB cases was 13.8 (SD 4.09) compared to non-TB cases 6.8 (SD 7.5) (p=0.04).

Conclusion: CBICF is a useful way to detect people with active TB, especially for hard-to-reach rural populations. Focusing screening efforts among those at ABVs is high yield and can be a useful adjunctive strategy for TB case finding efforts. These findings highlight a need for comprehensive substance abuse services to assist those at high risk for TB acquisition.

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760. A Silent Threat: Seroprevalence of Chagas Disease in Latin Americans Living in Long Island, New York

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Hispanics

Session: P-31. Global Health

Background: Chagas Disease (CD), a neglected tropical disease of Latin America (LA) is caused by the parasite *Trypanosoma cruzi*, transmitted by the triatomine insect (kissing bug), and known to cause cardiomyopathy (CMP), megacolon or achalasia. Despite the population of Latin Americans, by birth or descent, in Long Island (LI), New York (NY) approximating 20%, information regarding prevalence of CD in this region is scarce. This study aims to determine the seroprevalence and risk factors for *T. cruzi* infection among hispanics in LI.

Methods: This is a cross-sectional study. Inclusion criteria included, birth or living in LA for > 3 years, mother born or lived in LA for ≥3 years, and residency in Suffolk County, LI. Patients were screened by Chagas Detect™ *Plus* Rapid Test (immunochromatographic strip assay for the qualitative detection of human IgG antibodies to *T. cruzi; In*Bios Rapid test). Seropositivity was confirmed by enzyme immune assay and immunoblot. Participants answered a questionnaire regarding demographics and risk factors of CD.

Results: A total of 121 subjects (55.4% male) were tested from February 2018 to February 2020. Twelve were seropositive confirmed cases (9.9%; 66.7% male), with 9 cases from El Salvador (75%, p=0.06). Factors associated with infection were living in a palm house (OR=14.1, CI 2.7-74.7), history of triatomine bite (OR=9.5 CI=1.75–51.7), living in a house with triatomine (OR= 9.02, CI=1.9 – 42.8), and having relatives diagnosed with Chagas (OR= 7.6, CI=1.4 – 39.2). *T. cruzi* infected were most likely to have donated blood (OR=9.4, 95% CI=2.3–3.6). Two cases (16.6%) had CMP and did not qualify for treatment. One had gastrointestinal disease (8.3%). Eight started treatment with benznidazole.

Conclusion: In conclusion, we found a prevalence of 9.9% of *T. cruzi* infection in this high-risk population of LI. Two cases were diagnosed with CMP during this screening study highlighting that there are unrecognized cases of CD in this region where 20% are Hispanics. Such high prevalence and unrecognized disease, highlights the importance of raising awareness among providers of early screening and to prevent potential deadly outcomes.

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761. Antimicrobial Resistance Trends at a Pediatric Hospital in Guatemala City, 2005-2019

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Session: P-31. Global Health

Background: Antimicrobial resistance (AMR) is an increasing global threat to public health, particularly in Latin America. Most published data are based on adults with limited pediatric reports regarding resistance trends. Our study evaluated AMR rates in a large tertiary pediatric hospital in Guatemala City and the association with clinical outcomes.

Methods: We analyzed AMR rates for six bacterial species (Acinetobacter baumannii, Enterobacter cloacae, Escherichia coli, Klebsiella pneumoniae, Pseudomonas aeruginosa, and Staphylococcus aureus) identified from blood cultures from the WHONET database between 2005-2019. Resistance was determined using CLSI cutoffs on the VITEK and Sensititre systems. Student's t tests and simple linear regression models were performed. A retrospective review was performed on 99 pediatric patient charts with positive blood cultures (June 2018-May 2019) to assess clinical outcomes.

Results: *Klebsiella* and *Acinetobacter* were the most prevalent organisms throughout the 15 years of surveillance, with 2019 sensitivities demonstrating carbapenem-resistance in 99 (57%) and 57 (91%) of isolates, respectively. Increased resistance