116. Evaluating the Impact of the 2016 Candidaemia Guidelines on the Incidence of Ocular Complications of Candidaemia

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Session: P-52. Medical Mycology

Background. The incidence of Candida bloodstream infections has risen over the last several decades. Complications of candidemia include endogenous fungal endophthalmitis which can result in devastating outcomes including vision loss. In 2015, the IDSA guidelines were updated to recommend echinocandins as initial therapy for candidemia. Given the poor ocular penetration of echinocandins there has been some concern this change may portend an increased incidence of ocular complications in candidemic patients. We sought to examine whether patients who received empiric echinocandin therapy developed higher rates of ophthalmic complications of candidemia.

Methods. We identified patients in our healthcare system who had blood cultures positive for Candida species and a completed ophthalmology consult between January 1, 2014 and April 30, 2019. Chi-squared analysis was used to compare antifungal prescription patterns before and after release of the updated IDSA guidelines. We assessed whether the switch to empiric echinocandin therapy as directed by the guidelines was associated with higher rates of abnormal eye exams.

Results. 47 patients treated before the guideline change were compared to 57 patients treated after the guideline change. There was no significant difference in age, gender, or comorbid diabetes and hypertension between the groups. Before the guideline change, 24/47 (51%) of patients received eye-penetrating antifungals. This decreased to 21/57 after the updated guideline (37%; p=0.21). The percentage of patients receiving eye-penetrating antifungals was nearly equal before and after the updated guidelines, 10/47 (21%) before vs 13/57 (22%) after (p=1). After the guideline change, 7/21 (33%) of the patients treated with penetrating antifungals had positive eye exams vs 6/36 (16%) who received echinocandins (p=0.19).

Conclusion. Echinocandins are known to have poor ocular penetration yet our data demonstrate no change in the incidence of ophthalmic complications of candidemia after the 2016 guideline endorsed echinocandins as empiric therapy. The prevalence of positive eye exams throughout our study period was 22%, suggesting ongoing utility for these exams. Ongoing investigation is necessary to confirm and further study these findings.

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1167. Got Micafungin? The Incidence of Fungaemia in Patients with Septic Shock

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Background. Timely administration of antibiotics in patients presenting with sepsis decreases mortality; however evidence evaluating empiric antifungal coverage has been inconclusive. Recent data have shown no mortality benefit of empiric antifungal therapy in patients with ICU-acquired sepsis. Despite the lack of data, the Surviving Sepsis Campaign recommends empiric coverage for all suspected pathogens, including fungi. The purpose of this study is to determine the frequency of concomitant septic shock and fungemia at UMass Memorial Medical Center, a large tertiary care center.

Methods. This was a retrospective cohort study that included adult patients with a discharge diagnosis of severe sepsis or septic shock and/or fungemia admitted to UMMC between October 2017 and October 2019. Patients with positive fungal blood cultures were further reviewed to identify if septic shock was present within 24 hours of blood culture collection. Additionally, risk factors for fungemia and 30-day mortality were assessed. Exclusion criteria included pregnancy, cultures from outside hospitals, incarceration, and hospice care.

Results. In the analysis period, 4,253 patients had a discharge diagnosis of severe sepsis or septic shock. There were 68 cases of fungemia. In total, 54 patients with fungemia were included after applying exclusion criteria. Of the 54 patients with fungemia, 8 patients (15.1%) met criteria for septic shock at the time of positive blood culture, while 81% met SIRS criteria. Of the 4,253 total patients, 0.19% had coexisting fungemia and septic shock. At 30 days, four patients (7.4%) with both septic shock and fungemia had expired out of 12 total deaths. Three of the four deaths had multiple risk factors for fungemia including central line in place for greater than 48 hours, parenteral nutrition, and prolonged antibiotic therapy.

Conclusion. Septic shock is a rare presentation of fungemia. Most patients with septic shock and fungemia have known risk factors. Despite recommendations by the Surviving Sepsis Campaign to initiate therapy for all likely pathogens, including fungal species, the incidence of fungemia presenting as septic shock at our academic medical center was very low and does not appear to warrant empiric coverage.

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1168. Higher Glycosylated Hemoglobin (A1c) Levels are Associated with Increased Mortality from Cryptococcus Infection

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Background. Diabetes mellitus is a well-established risk factor for the development of bacterial infections. However, the role of diabetes mellitus as a risk factor in the occurrence of Cryptococcus infection is unknown. The aim of the study was to determine whether diabetes and A1c levels were independent risk factors for infection and mortality in Cryptococcus infection.

Methods. A retrospective hospital-based case-control study matched by age and gender (96 cases and 125 controls) was performed in patients tested for Cryptococcus infection at University of Colorado Hospital from 2001-2019 (n=221). Data was extracted through RedCap. A multivariable logistic regression model was used to identify predictors of infection and mortality.

Results. Diabetes mellitus was present in 24 cases (25.0%) and 24 controls (19.2%). In cases, the mean age was 54 years; 79% were men, and diabetes was the only known risk factor in 6 cases (6.3%) and accompanied additional risk factor in 18 cases (18.8%). Other common risk factors included: HIV (39.9%), steroid use (24.7%), malignancy (23.2%), solid organ transplant recipients (18.1%), and cirrhosis (5.2%). Cryptococcal meningitis (49.9%) followed by pulmonary infection (36.5%) were the most common sites of infection. The mean A1c value for cases vs. controls was 6.5 ± 1.5 vs. 6.2 ± 1.8 mmol/L, p=0.43. Overall mortality was 27.3% vs. 26.9% among cases and controls, respectively. Among cases, the risk of death was higher for patients with diabetes, although not significantly (39.1% vs.23.1%, p= 0.137). Adjusted for gender, age and case/control; for every 1-point increase in A1c levels, the odds of mortality increased by 40% (OR = 1.4, CI: 1.0-1.9, p= 0.045).

Conclusion. Diabetes mellitus alone is an uncommon risk factor for acquiring Cryptococcus infection. However, uncontrolled diabetes in Cryptococcus may worsen outcomes from infection, including increased mortality. Glucose control interventions may improve clinical outcomes in patients with cryptococcal infection.

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1169. In Vitro Activity of Posaconazole versus Voriconazole for the Treatment of Invasive Aspergillosis in Adults Enrolled in a Clinical Trial

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Session: P-52. Medical Mycology

Background. Invasive aspergillosis (IA) is a life-threatening disease with limited treatment options and is associated with delays in effective treatment and significant early mortality. Posaconazole (POS) is a broad-spectrum triazole antifungal, that exhibits potent activity against yeasts and molds. We evaluated the antifungal susceptibility testing of isolates obtained during a randomized, double-blind, double-dummy study comparing posaconazole with voriconazole (1:1 randomization) given for 512 weeks in the primary trial of IA (ClinicalTrials.gov, NCT01782131, EndurACT, 2011-003938-14) using CLSI and EUCAST reference testing methodologies.

Methods. More than 90 study sites located in 23 countries enrolled subjects in the clinical trial. A total of 127 isolates were recovered from documented infections during 2013 through 2019. Fungal isolates were identified using molecular methods and antifungal susceptibility testing was performed by reference broth microdilution methods.

The following antifungal agents tested were: posaconazole, itraconazole, voriconazole, caspofungin, and amphotericin B

Results. Of the 127 samples tested, 119 were identified as Aspergillus species. Aspergillus fumigatus (N=76) was the most prevalent species, followed by A. flavus species complex (N=19), A. section Nigri (N=10), A. section Terrei (N=7). Overall, posaconazole (MIC, MIC₉₀, 0.5/1 mg/L) displayed similar activity to voriconazole (MIC,MIC₉₀, 0.5/1 mg/L) and itraconazole (MIC,MIC₉₀, 1/2 mg/L) against 19 A. fumigatus species isolates as posaconazole, CLSI and EUCAST method. Posaconazole (MIC,MIC₉₀, 0.5/0.5 mg/L) and voriconazole (MIC,MIC₉₀, 0.25/0.5 mg/L) inhibited all 76 A. fumigatus isolates at MIC of 1 mg/L. Among 19 A. flavus species complex isolates recovered from this study, posaconazole (MIC,MIC₉₀, 0.5/1 mg/L), voriconazole (MIC,MIC₉₀, 0.5/1 mg/L) displayed equivalent activity.

Conclusion. Posaconazole displayed good activity against all Aspergillus species isolates included in this study. In addition, posaconazole in vitro activity against Aspergillus species was similar to that observed by voriconazole and itraconazole.

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