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151. Risk Factors Predicting Candida glabrata Bloodstream Infection
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Background. Increased incidence of Candida glabrata (CG) infection is a growing concern in recent years due to the higher rates of fluconazole resistance associated with C. glabrata. This study aimed to create a risk predictive model for C. glabrata in patients with hematologic malignancies.

Methods. Demographic data, risk factors, laboratory parameters, and outcomes were retrospectively collected on all cases of candidemia occurring at a large tertiary referral hospital between January 2002 and January 2015. Between-group differences were compared using 2 square tests. A risk predictive model was built using multivariate logistic regression.

Results. Of 1,913 subjects with candidemia, 398 (21%) had C. glabrata isolated. Those with C. glabrata were older (mean [SD] 61 [23] vs. 58 [23] years; P < 0.001), more often female (231 [58%] vs. 681 [45%]; P < 0.001). On univariate analysis, age (OR 1.01 [95% CI 1.01,1.02]), gender (0.6 [0.5, 0.7]), history of rectal cancer (2.0 [1.2, 3.5]), other GI malignancy (3.0 [1.5, 6.2]), breast cancer (1.8 [1.1, 3.0]), enteral and parenteral feeding (1.9 [1.2, 3.2]), bowel resection (3.0 [1.4, 6.2]), temperature (0.9 [0.8, 1.0]), recent fluconazole use (2.0 [1.4, 2.9]), and The presence of urinary catheter (2.3 [1.4, 3.6]), central line (1.4 [1.1, 1.7]) or ventilator (2.2 [1.3, 3.8]) were all associated with C. glabrata infection (P < 0.05) and included in the multivariate modeling. Age, gender, history of rectal malignancy, other GI malignancies, use of enteral or parenteral feeding and recent fluconazole use remained significant (effect size 1.2 [95% CI 1.1,1.3], 1.8 [1.4,2.3], 2.0 [1.3,3.6]; 3.0 [1.3,6.9]; 1.9 [1.0,3.3]; 2.0 [1.3, 3.0], respectively). The final model had a c-statistic of 0.66 [95% CI 0.63-0.69]). Ninety-day mortality in the C. glabrata group was not significantly different from the non-C. glabrata group (40% [158/398] vs. 42.5% [644/1515]).

Conclusion. Underlying bowel pathology was more commonly associated with C. glabrata candidemia than with other candida species. Further exploration of the direct association between C. glabrata and GI malignancy and indirect effects of prior surgery or antifungal use on risk of C. glabrata candidemia are required. Interestingly, mortality did not differ between groups with glabrata and non-glabrata candida blood stream infections. This may reflect increasing empiric use of echinocandin therapy.

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152. Primary or Secondary Prophylaxis with Voriconazole Compared with POSP on Prevention of Invasive Fungal Infections After Hematopoietic Stem Cell Transplantation
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Background. Invasive fungal infections (IFI) remain a serious complication in hematopoietic stem cell transplantation (HSCT) patients and are associated with increased mortality, morbidity, and mortality. Voriconazole (PCZ) and posaconazole (VCZ) are frequently utilized as antifungal prophylaxis in this population. To date, no direct comparison between PCZ and VCZ exists for the prevention of IFI in HSCT patients.

Methods. A retrospective cohort analysis of HSCT patients aged ≥18 years who received ≥28 continuous days of primary (PPPx) or secondary (SPPx) antifungal prophylaxis with either VCZ or PCZ between February 26, 2003 and September 30, 2015 at Barnes-Jewish Hospital was conducted. Patients who received PCP or SPPX with both VCZ and PCZ were analyzed following intention to treat of the initial agent received. Patients who received both PCP and SPPX were included once for both PPx and SPPX. The primary outcome of interest was development of possible, probable, or proven IFI as defined by EORTC/MSG guidelines. In the SPPX patients, development of IFI was confirmed as a distinct event from primary IFI based on manual chart review and radiographic evidence.

Results. Overall, there were 472 patients included; 402 in the VCZ group and 70 in the PCZ group. At baseline, patients in the PCZ group had more graft vs. host disease (GVHD) prior to prophylaxis (27.1% vs. 16.7%, P = 0.04) and were more likely to be on SPPX (60% vs. 41%, P < 0.01). There were 22 and 1 IFI events in the VCZ and PCZ groups, respectively, which corresponded to a crude incidence rate of 6.345 and 0.077 per 1000 person-days of prophylaxis. Figure 1 displays the Cox proportional hazard model which was completed in the backwards stepwise method accounting for gender, transplant type, GVHD prior to prophylaxis, disease remission, and PPPX or SPPX. The hazard ratio for development of IFI while on prophylaxis between VCZ and PCZ was 5.22 (95% CI 0.69–39.4; P = 0.11) after controlling for PPPX or SPPX.

Conclusion. There was not a significant difference between rates of IFI in HSCT patients who received antifungal prophylaxis with VCZ compared with PCZ. Our data trends towards favoring PCZ but is limited by low rates of IFI. Larger, prospective analyses are necessary to confirm our findings.

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153. Coccidioidomycosis After Solid Organ Transplantation: A Population-Based Study
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Background. Coccidioidomycosis is an invasive fungal infection in solid organ transplantation (SOT) recipients with an incidence of 1.4–6.9% in endemic regions. There are no population-level data describing the incidence and outcomes of coccidioidomycosis in SOT recipients.

Methods. We assembled a large cohort of adult SOT recipients using ICD-9-CM billing data from the California State Inpatient Databases from 2004 to 2011. Demographics, comorbidities, coccidioidomycosis coded during hospitalization and inpatient death were identified. We used Cox proportional hazard multivariate analyses to identify risk factors for coccidioidomycosis and death.

Results. 20,602 SOT recipients were identified during the study period (median follow-up time = 1507 days). Eighty-seven patients (0.42%) with coccidioidomycosis were identified of whom 17 (20%) were coded with progressive/disseminated coccidioidomycosis. There was not a significant difference between rates of IFI in HSCT patients who received antifungal prophylaxis with VCZ compared with PCZ. Our data trends towards favoring PCZ but is limited by low rates of IFI. Larger, prospective analyses are necessary to confirm our findings.

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154. Posaconazole-Induced Hypertension and Hypokalemia: Mechanistic Evaluation
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Background. Recent studies have shown the new posaconazole delayed-release tablets have superior bioavailability compared with the liquid suspension formulation. As higher serum posaconazole concentrations have been associated with improved clinical responses, this formulation has been a welcome addition to available treatments. However, serum and tissue levels are likely to reveal previously undescribed toxicity as adverse events attributed to "off-target" effects are observed.

Methods. We prospectively identified two patients with new onset hypertension, hypokalemia, and akathisia after starting posaconazole tablets. Patient vital signs and laboratory values were within normal limits prior to starting posaconazole; however, following over 30 days of therapy both patients became newly hypertensive (mean systolic BP increase 59 mmHg). Serum posaconazole levels were 4.3-4.6 µg/ml. Complete suppression of renin and aldosterone, with increased 11-deoxycortisol, estradiol levels, and cortisol/cortisone ratios were observed in both patients. The TTG/K in both patients was inappropriately elevated.

Results. Posaconazole-induced disruption of the steroid biosynthesis pathway in patients has not previously been described, but has been suggested by in vitro studies. Our patients' laboratory results show clinically significant inhibition of 11β-hydroxysteroid dehydrogenase enzyme type 2 (11β-HSD2) as evidenced by: the elevated 11β-deoxycortisol (with subsequent suppression of renin and aldosterone); the highly elevated cortisol/cortisone ratio; and the inappropriately elevated TTG/K in the setting of hypokalemia. The normal deoxycorticosterone confirms normal function of 11β-hydroxylase and the observed effects in our patients are thus downstream from this enzyme.

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Conclusion. Our findings support in vitro predictions and highlight the clinical sequelae of posaconazole-mediated inhibition of 11β-HSD2. Additional studies are necessary to determine the frequency of posaconazole induced apparent mineralocorticoid excess syndrome and whether other azole antifungals can be associated with this phenomenon.

155. Detection of (1,3)-β-D-Glucan in Cerebrospinal Fluid in Histoplasma Meningitis
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Background. Central nervous system (CNS) histoplasmosis is a life-threatening condition, and represents a diagnostic and therapeutic challenge. Although CSF (1,3)-β-D-glucan (CSF BDG) is available as a biologic marker for diagnosis of fungal meningitis, there are limited data on its use for diagnosis of Histoplasma meningitis. We evaluated CSF BDG detection using the Fungitell assay in patients with CNS histoplasmosis and controls.

Methods. Patients were classified as cases if there was CNS inflammation (CSF WBC > 5 mm3/ml) plus laboratory confirmation of H. capsulatum CNS samples or from extra-CNS sites with no alternative etiology for CSF pleocytosis. Controls were patients with histoplasmosis but no evidence of CNS involvement, an alternative diagnosis, or other fungal meningitis.

Results. In total, 47 cases and 153 controls were evaluated (Table 1). Forty-nine percent of patients with CNS histoplasmosis and 43.8% of controls were immunocompromised. CSF BDG was positive in 25 (53.2%) cases using a level of ≥80 pg/ml, the median CSF BDG level was 140.5 pg/ml (range from <31 to 505 pg/ml). The detection of CSF BDG level ≥80 pg/ml was not associated with positive CSF Histoplasma antigen (P = 0.28) or positive CSF Histoplasma culture (P = 0.56). The sensitivity for detection of CSF BDG was 53.2% and the specificity was 87.3%, compared with 78.7% (P = 0.009) and 96.4% (P = 0.003), respectively, for detection of antigen. CSF BDG was positive in 20 of 153 (13.1%) patients in the control group. Seven of 11 (63.6%) other CNS fungal meningitis cases (five Cryptococcus, two Aspergillus, two Blastomyces, one Candida, and one suspected fungal meningitis) had CSF BDG ≥80 pg/ml.

Conclusion. A positive CSF BDG supports the diagnosis of fungal meningitis but cannot distinguish among the different etiologies. The sensitivity and specificity of detection of CSF BDG was lower than that of antigen detection.

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Table 1: Characteristic Study Patients

| Parameter                          | CNS histoplasmosis | Controls* | P-value |
|-----------------------------------|--------------------|-----------|---------|
| Immuno compromised                | 23/47 (48.9%)      | 67/153 (43.8%) | 0.54    |
| CSF BDG > 80 pg/ml                | 29/47 (61.7%)      | 20/153 (13.1%) | <0.0001 |
| CSF Histoplasma antigen positive  | 37/47 (78.7%)      | 5/142 (3.5%)  | <0.0001 |
| CSF culture positive              | 9/44 (20.5%)       | 11/117 (9.4%) | 0.058   |

*Control included five Cryptococcus, two Aspergillus, two Blastomyces, one Candida, and one suspected fungal meningitis.

P-value = 0.0099; P-value = 0.003.

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156. Real-World Experience of Voriconazole Prophylaxis in Allogeneic Hematopoietic Cell Transplant Recipients: A Single-Center Study
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Background. High rates of discontinuation of voriconazole (VCZ) antifungal prophylaxis (AFP) due to toxicities have been reported from single centers in allogeneic hematopoietic (allo-HCT) recipients. We sought to describe (i) adherence to AFP guidelines and (ii) reasons for premature VCZ discontinuation (D/C).

Methods. Retrospective review of 215 adult allo-HCT recipients from September 2014–December 31, 2015 at our center. Per standards of care (SOC), patients received micafungin from Day 2 post-allo-HCT, then switched to VCZ by D7 unless contraindicated, and remained on AFP until cessation of immunosuppression or D100