Disclosures. **W. Powderly**, Merck: Grant Investigator and Scientific Advisor, Consulting fee and Research grant Gilead: Scientific Advisor, Consulting fee Astellas: Grant Investigator, Research grant **A. Spec**, Astellas Pharma US, Inc.: Grant Investigator, Research grant

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 culture-positive candidemia.

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; $P < 0.001$) and 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 (2.00 [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 [1.1, 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.

Disclosures. **A. Spec**, Astellas Pharma US, Inc.: Grant Investigator, Research grant

152. Primary or Secondary Prophylaxis with Voriconazole Compared with Posaconazole for Prevention of Invasive Fungal Infections After Hematopoietic Stem Cell Transplantation

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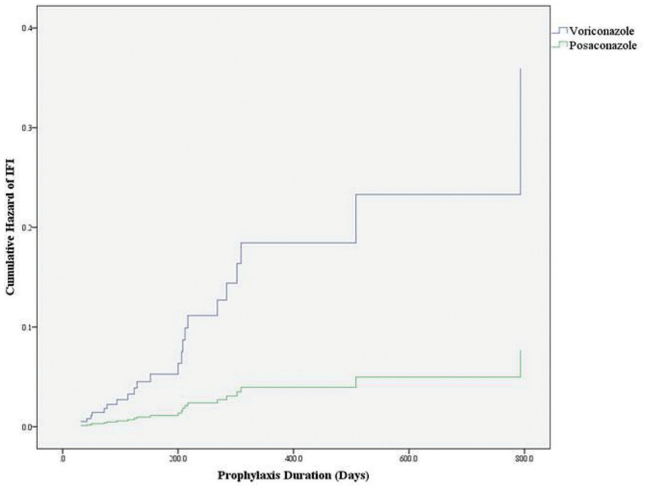
Background. Invasive fungal infections (IFI) remain a serious complication in hematopoietic stem cell transplantation (HSCT) patients and are associated with increased costs, morbidity, and mortality. Posaconazole (PCZ) and voriconazole (VCZ) are frequently utilized as antifungal prophylaxis in this population. To date, no direct comparison between PCZ and VCZ exists for the prevention of IFI in adult 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 PPPx or SPPx with both VCZ and PCZ were analyzed following intention to treat of the initial agent received. Patients who received both PPPx and SPPx were included once for both PPPx 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 0.345 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.

Figure 1. Cox model for IFI rates.



Disclosures. **W. Powderly**, Merck: Grant Investigator and Scientific Advisor, Consulting fee and Research grant. Gilead: Scientific Advisor, Consulting fee. Astellas: Grant Investigator, Research grant

153. Coccidioidomycosis After Solid Organ Transplantation: A Population-Based Study

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Session: 44. Clinical Mycology
Thursday, October 5, 2017: 12:30 PM

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 disease. Median time to diagnosis was 164 days (IQR 16–844) from transplantation. Fifty-one of 87 (58%) of these infections were diagnosed within the first year post-transplant and 29/87 (33.3%) were identified within the first month. Twenty-one of 87 (24%) of patients with coccidioidomycosis died compared with 1928/18587 (9.4%) of patients without coccidioidomycosis ($P < 0.001$). Coccidioidomycosis was independently associated with death (HR, 3.1; 95% CI, 2.0–4.4), after adjusting for age, type of transplantation, transplant failure/rejection, and other comorbidities (Table) (Figure).

Conclusion. Coccidioidomycosis resulting in hospitalization is rare in an endemic region in the current era of screening and prophylactic antifungal therapy. Preventing infection in solid organ transplant recipients is imperative because overall mortality remains high.