1734. Voriconazole Prophylaxis Following Allogeneic Hematopoietic Stem Cell Transplantation: How Much Is Enough, Are Low Voriconazole Levels Associated With Opportunistic Infections, and What Are the Reasons for Discontinuation? Giorgos Hadjiavassiou, MBBS1; Claire Rummage, PharmD2; Craig Hoesly, MD1; Matthew L. Brown, PharmD2; University of Alabama at Birmingham, Birmingham, Alabama; University of Alabama in Birmingham Hospital, Birmingham, Alabama

**Session:** 166. Transplant ID: Fungal
**Friday, October 4, 2019: 12:15 PM**

**Background.** Patients who undergo allogeneic hematopoietic stem cell transplantation (alloHSCT) are at increased risk for invasive fungal infections with associated high mortality and morbidity that necessitates the use of prophylactic antifungals. Voriconazole is commonly used for prophylaxis, but there are no recommendations for therapeutic drug monitoring. The purpose of this study was to characterize voriconazole therapeutic drug monitoring and associated outcomes in this patient population.

**Methods.** AlloHSCT patients receiving voriconazole prophylaxis at the University of Alabama at Birmingham Hospital between March 2015 and March 2018 were included in the analysis. Serum voriconazole levels (SVL) were evaluated to determine what percentage of patients achieved prophylactic or therapeutic concentrations. Incidence of invasive fungal infections (IFI) and voriconazole discontinuation was also assessed.

**Results.** Voriconazole prophylaxis was used in 151 of 162 alloHSCT patients, and 120 patients (79%) had SVL drawn correctly (≥4 days after initiation of course). We found that 35 (29%) patients achieved a subtherapeutic level (<0.5 μg/mL), 17 (14%) prophylactic level (0.5 to 1 μg/mL), 68 (57%) therapeutic level (1 to 5.5 μg/mL), and no patients achieved a supratherapeutic level (>5.5 μg/mL). Voriconazole prophylaxis was discontinued early in 60 of 151 patients. Most common etiologies for discontinuation included liver function test abnormalities (44%) and encephalopathy (21%). The average SVL was 1.2 μg/mL in those requiring discontinuation. Four patients (3%) developed an IFI while receiving prophylactic voriconazole, of which only 1 had subtherapeutic level.

**Conclusion.** Even though approximately one-third of patients achieved a subtherapeutic SVL, there was no correlation with breakthrough IFI. There was also no linear correlation between SVL and risk of adverse effects requiring discontinuation. Our observational data do not support a need for therapeutic drug monitoring in alloHSCT patients receiving prophylactic voriconazole.

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1735. Epidemiology of Invasive Fungal Infections During Induction Chemotherapy in Adults With Newly Diagnosed Acute Myeloid Leukemia Without Antifungal Prophylaxis: A Retrospective Cohort Study Eugenia Miranti, MD; Kyle Enriquez, Bruno Medeiros, MD; Aruna Subramanian, MD; Dora Ho, MD, PhD; David J. Epstein, MD; Stanford Medicine, Stanford, California

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**Friday, October 4, 2019: 12:15 PM**

**Background.** While invasive fungal infections (IFI) are common in patients with acute myeloid leukemia (AML) undergoing induction chemotherapy, little current data exist on the epidemiology of IFIs in this patient population given widespread use of antifungal prophylaxis. Because our institution does not administer antifungal prophylaxis, we are in a unique position to study the natural history of IFIs in these patients.

**Methods.** We evaluated the incidence of IFIs using established definitions in adults with AML undergoing induction chemotherapy at Stanford Health Care from 2012 to 2017. We also analyzed incidence of antifungal treatment, impact of IFI diagnosis on survival, and risk factors for IFI development. Patients were followed for up to 12 weeks after beginning induction chemotherapy.

**Results.** Of 488 patients analyzed, 243 were eligible for inclusion. The median age was 57 (interquartile range 45–65). Men composed 134 (55%) of the patients and 157 (65%) where white. Fifty-four (22%) had antecedent myelodysplastic syndrome; 31 (13%) developed a proven or probable IFL 104 (43%) developed a proven, probable, or possible IFL. Most IFIs were due to respiratory tract disease. Eighteen identified organisms were Candida, including six C. albicans. Eight organisms were mold, including four Aspergillus isolates (all but one A. fumigatus) and one isolate each of Fusarium solani, Rhizomucor, Rhizopus, and Scedosporium apiospermum/Pseudallescheria boydii. One hundred ninety patients (78%) received antifungals during their initial admission and 99 (46%) of patients surviving their initial admission were discharged on
All patients on posaconazole suspension who experienced a fungal event were subtherapeutic (3/3, 100%) compared with the majority of patients on posaconazole delayed release (DR) tablets who achieved therapeutic levels (17/22, 77.3%). Mean posaconazole trough level observed in the patients receiving DR tablet was 2.15 ± 0.95 μg/mL.

Conclusion. There was an association between two consecutive subtherapeutic azole prophylaxis levels and positive fungal events indicating a role for TDM in lung transplant recipients. Time to fungal event post-transplant was shorter in subtherapeutic patients. As anticipated, the use of posaconazole suspension resulted in subtherapeutic levels. This study presents an opportunity for further research of the impact of TDM on clinical outcomes to optimize patient care.

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1738. Incidence and Outcomes of Hospitalization with Invasive Fungal Infection Among Solid-Organ Transplant Recipients: A Population-Based Cohort Study

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Session: 166. Transplant ID: Fungal Friday, October 4, 2019: 12:15 PM

Background. Invasive fungal infection (IFI) in solid-organ transplant (SOT) recipients is associated with significant morbidity and mortality. The long-term probability of post-transplant IFI is poorly understood.

Methods. We conducted a population-based cohort study using linked administrative health care databases from Ontario, Canada to determine the incidence rate, 1-, 5- and 10-year cumulative probability of IFI-related hospitalization, and 1-year post-IFI all-cause mortality in SOT recipients from 2002 to 2016. We also examined post-IFI death-censored graft failure in renal transplant patients.

Results. We included 9326 SOT recipients (median follow-up 5.35 years). Overall, the incidence of IFI was 8.3 per 1000 person-years (95% confidence interval [CI]: 7.5–9.1). The 1-year cumulative probability of IFI was 7.4% (95% CI: 5.8–9.3%), 4.9% (95% CI: 3.6–8.1%), 1.9% (95% CI: 1.3–2.5%), 1.2% (95% CI: 0.5–3.2%), and 1.1% (95% CI: 0.9–1.4%) for heart, lung, liver, kidney-pancreas, and kidney-only transplant recipients, respectively. Lung transplant recipients had both the highest incidence rate and the highest 10-year probability of IFI: 43.0 per 1000 person-years (95% CI: 36.8–50.0) and 26.4% (95% CI: 22.4–30.9%), respectively. Lung transplantation was also associated with the highest 1-year cumulative probability of post-IFI all-cause mortality (40.2%, 95% CI: 33.1–48.3%). Among kidney transplant recipients, the 1-year probability of death-censored graft failure after IFI was 9.8% (95% CI: 6.0–15.8%).

The 1-year cumulative probability of IFI varies widely among SOT recipients. Lung transplantation was associated with the highest incidence of IFI with considerable 1-year all-cause mortality. The findings of this study considerably improved our understanding of the long-term probability of post-transplant IFI.

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1739. Epidemiology of Invasive Fungal Infections in Allogeneic Hematopoietic Stem Cell Transplant Recipients in Utah

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Background. Invasive fungal infections are a leading cause of death in allogeneic hematopoietic stem cell transplant recipients. We describe the epidemiology of IFIs (invasive fungal infections) in allogeneic HSCT recipients at a single institution in Salt Lake City, Utah between 2006 and 2015.