stays, and increased healthcare costs. This study aims to evaluate current practices of candidemia management and review associated clinical outcomes to identify potential targets for antifungal stewardship.

**Methods.** A retrospective chart review of all patients with a positive blood culture for *Candida* spp. between July 2016 and June 2017 was conducted at a large academic medical center. The primary endpoint was time to effective therapy defined as time from first positive blood culture to start of an antifungal with in vitro susceptibility. Secondary endpoints were time to clearance of candidemia and 30-day all-cause mortality. Data analysis was conducted and reported using descriptive statistics.

**Results.** A total of 36 patients with candidemia were included, a majority of whom were consulted by the Infectious Diseases (ID) team (81%). *C. albicans* and *C. parapsilosis* were the most common pathogens (36% and 25%, respectively) and sources of candidemia varied, with the most common being a line-related source (42%). Median time to effective therapy was 0.3 hours (IQR 0.12–9.95). Thirty-four percent of patients received a non-azole, primarily caspofungin, and 36% of patients received an azole as empiric antifungal therapy. Selection of empiric fluconazole was deemed suboptimal for 17% of patients, all of whom received delayed or no ID consult. Significantly more ID consult patients received an ophthalmology consult vs. non-ID consult patients (65% vs. 0%, P = 0.002). Additionally, echocardiograms were more frequent in ID consult vs. non-ID consult patients (52% vs. 29%, P = 0.048). Median from candidemia clearance was 58 hours (IQR 46.4–95.6) and 30-day all-cause mortality was 25%.

**Conclusion.** Most patients were started on effective antifungal therapy once candidemia was identified. Patients with an ID consult were more likely to receive ophthalmology consults or echocardiograms to rule out optic or cardiac involvement, respectively. Antifungal stewardship efforts geared toward establishment of institutional guidelines, candidemia treatment bundles, or mandatory ID consult may be considered to improve current practices of candidemia management.

**Disclosures.** All authors: No reported disclosures.

375. Toleranceability of Anidulafungin for Candidemia in Patients With Hepatic or Renal Dysfunction

Ji Young Kim, Bachelor of Pharmacy1, and Dong Sik Jung, MD2; 1Pharmacy, Dong-A University Hospital, Busan, Korea, Republic of (South) and 2Infectious Diseases, Dong-A University Hospital, Busan, Korea, Republic of (South)

**Session:** 56. Fungal Disease: Management and Outcomes

**Thursday, October 4, 2018: 12:30 PM**

**Background.** Anidulafungin has been prescribed in patients with candidemia, especially hepatic or renal dysfunction because of not undergoing metabolism in the liver and kidney. The purpose of this study was to evaluate the safety of anidulafungin in these patient populations.

**Methods.** We retrospectively reviewed the electronic medical records of candidemia in 146 patients who were treated with anidulafungin for more than 7 days at Dong-A University Hospital from January 2012 to December 2017. We evaluated changes in AST, ALT, and total bilirubin (TB) during anidulafungin therapy, and change in estimated GFR (eGFR), calculated by the Modification of Diet in Renal Disease (MDRD) study equations. There were 101 patients with impaired liver function at the start of anidulafungin therapy (group A) and 57 with renal insufficiency (group B). In group A, 61 (60%) were male and the median age was 69 (20–88) years. The patients had solid tumor (51, 50%) and 26 (26%) were liver disease. According to the Child Pugh score, 54 (53%) patients were class B and five (5%) were class C. The median changes in AST, ALT, and TB during anidulafungin therapy were –30 U/L, –8 U/L, –0.3 mg/dL (P = 0.023, P = 0.008, P = 0.013), respectively (Figure 1A). In group B, 35 (61%) were male and the median age was 71 (20–88) years. There were 21 (37%) patients with solid tumor and 30 (53%) had kidney disease. The median change of eGFR was 8.66 mL/minute/1.73 m² (P = 0.001) (Figure 1B). Over 75% (ALT, AST, eGFR) and nearly 60% (TB) of patients had favorable changes (values were stable or improved) in hepatic or renal function during the anidulafungin therapy (Figure 2).

**Conclusion.** Anidulafungin was tolerable for the treatment of candidemia in patients with hepatic or renal damage.

376. Predictive Model for Fluconazole Resistance in Patient With Candida Bloodstream Infection

Abdullah Aljorayid, MD1; Ryan Kronen, B.A.;2 Ana S. Salazar, MD2; Kevin Houck, MD3; Charlotte Lin, MD;2 William Powderly, MD;1 Andrey Spec, MD;1

1Infectious Disease, Barnes Jewish Hospital/Washington University in St. Louis, St. Louis, Missouri; 2Washington University School of Medicine in St. Louis, St. Louis, Missouri

**Session:** 56. Fungal Disease: Management and Outcomes

**Thursday, October 4, 2018: 12:30 PM**

**Background.** Candida bloodstream infection (CBSI) is associated with high morbidity and mortality. Guidelines recommend echinocandins as initial therapy, with fluconazole as an acceptable alternative in selected patients, including those at low risk for fluconazole resistance. We aimed to create a predictive model to identify patients at high risk of fluconazole resistance.

**Methods.** We performed a retrospective analysis of hospitalized patients with CBSI at a large tertiary referral hospital between January 2007 and January 2015. Data were collected on demographics, comorbidities, medications, procedures, central lines, vital signs, and laboratory values. Univariate and multivariable logistic regression analyses were used to build the predictive model. Variables with P < 0.25 were considered for the multivariable analysis, and only those that remain significant (P < 0.05) were retained in the final model.

**Results.** We identified 1,083 patients with CBSI, of whom 684 patients had azole susceptibility data available. Among cases with available resistance data, C. glabrata was the most common species isolated, occurring in 240 cases (38%), followed by *C. parapsilosis*, 176 cases (25.7%), and *C. albicans*, 121 cases (17.6%). One hundred thirty-nine isolates were found to have fluconazole resistance (*C. glabrata* 55, *C. krusei* 36). Eighty-three variables were considered in the multivariable analysis; nine remained significant and were included in our final model. Variables associated with a higher risk of fluconazole resistance were: hematological cancer (OR 1.69 [95% CI 1.03, 2.79], presence of an indwelling line (2.00 [1.30, 3.10]), prior fluconazole use (2.46 [1.32, 4.56]), prior voriconazole use (10.89 [1.18, 99.84]), prior calcineurin inhibitor use (2.65 [1.24, 5.66]), prior nitrimidazole use (1.63 [1.01, 2.64]), and prior tetracycline use (4.77 [1.96, 11.64]). Isolation of *C. parapsilosis* (0.20 [1.01, 0.39]), and chronic pulmonary disease (0.63 [0.21, 0.87]) were associated with a lower risk of resistance. The final model had a C-statistic of 0.75.

**Conclusion.** We identified nine risk factors that were significantly associated with fluconazole resistance. By creating a predictive model, patients at higher or lower risk for resistance may be identified earlier which may assist in the choice of initial antifungal treatment.

**Disclosures.** All authors: No reported disclosures.

377. High Resistance and Mortality Rates in Patients With Ventricular Assist Device (VAD)-Associated Candidemia: A Need for Alternative Antifungal Strategies

Gary Feng, PharmD1 and Nicholas D. Beyda, PharmD, BCPS1; 1UCH St. Luke’s Health - Baylor St. Luke’s Medical Center, Houston, Texas; 2Pharmacy Practice and Translational Research, University of Houston College of Pharmacy, Houston, Texas

**Session:** 56. Fungal Disease: Management and Outcomes

**Thursday, October 4, 2018: 12:30 PM**

**Background.** VADs are increasingly utilized in the management of end-stage heart disease. Infections are frequently encountered in VAD patients, are difficult to manage, and delay heart transplant. Prior studies have illustrated that fungal infections are more severe than bacterial infections but carry a higher mortality rate. Published data regarding the treatment and outcomes of fungal infections in VAD patients are scarce. The objective of this study was to describe treatment patterns, clinical outcomes and antifungal resistance rates in this unique patient population.

**Methods.** This was a retrospective cohort study that included VAD patients 18 years and older admitted to Baylor St. Luke’s Medical Center in Houston, Texas between 2009 and 2016 with a positive blood culture for *Candida* spp. Patients with
378. Candida auris Fungemia: Risk Factors and Outcome
Rodney Adam, MD, FIDSA1; Nancy Okinda, MMED2; Gunnturu Revathi, Clinical Microbiologist1; Melanie Fontaine, MSc3; Elizabeth Kagotho, MMED4; Mariana Castanheira, PhD3; Michael A. Pfaller, MD5 and Daniel Maina, MMED6; 1Pathology and Medicine, Aga Khan University Hospital Nairobi, Kenya, 2Pathology, Aga Khan University, Nairobi, Kenya, 3JMI Laboratories, Inc., North Liberty, Iowa
Session: 56. Fungal Disease: Management and Outcomes
Thursday, October 4, 2018: 12:30 PM
Background. Candida auris emerged as a human pathogen in 2009 and has subsequently been identified around the world as a cause of invasive candidiasis. Published clinical information on this organism consists primarily of case reports and small case series; thus, data from a single institution will allow us to examine risk factors for acquiring C. auris candidemia in comparison to other Candida species. Methods. Aga Khan University Hospital Nairobi is a 280-bed referral center with 50 critical care beds. Prolonged candidemia was not associated with development of in vitro positive blood culture. There was a trend toward more pre-existing renal failure (39% isolates and all were identified as C. auris infections (Maina et al., 2016). Blood cultures were monitored continuously using the JMI Laboratories, Inc. Vitek II system, with a special ID card (Figure 1). Results. From September 2010 to December 2016, 201 patients had 228 episodes of candidemia. Further analyses were performed only for first episodes. C. auris accounted for 38% of candidemia cases and 25% for C. albicans. A case-control analysis was done to compare patients with C. auris vs. Candida albicans fungemia. C. auris patients were more likely to be from critical care beds (78% vs. 52%; P = 0.003) and had been hospitalized longer (mean 33 days vs. 13 days; P < 0.001) prior to the positive blood culture. There was a trend toward more pre-existing renal failure (39% vs. 24%; P = 0.09) in C. auris patients and during the two weeks prior to candidemia, they were more likely to have central lines (44% vs. 54%; P = 0.001). C. auris patients received a mean 3.35 antimicrobial classes vs. 2.6 for C. albicans (P = 0.02). 75% of C. auris patients received carbapenems vs. 54% for C. albicans (P = 0.02). Eighteen percent of C. auris patients had 214 days of candidemia, despite frequent lack of followup blood cultures. Prolonged candidemia was not associated with development of in vitro resistance. The crude mortality was 29%, compared with 36% for C. albicans and 39% for other Candida spp. (NS).
Conclusion. These findings suggest an opportunistic pathogen that may be less virulent, but difficult to eradicate and that control efforts should focus on antimicrobial usage.
Disclosures. M. Castanheira, Allergan: Research Contractor, Research support. M. A. Pfaller, Allergan: Research Contractor, Research support.

379. Pediatric Bloodstream Infections by Candida auris in Colombia: Clinical Characteristics and Outcomes of 34 Cases
Indira Berrio, MD, MSc1; Diego H. Caceres, MSc2; Wilfrido Cornell R, MD, PhD3; Soraya Salcedo, MD, MSc1; Laura Mora, MD4; Adriana Marin, MSc5; Carmen Varón, Patricia Escandon, MSc, Sandra Rivera, Tom Chiller, MD, MPH6 and Snigdha Vallabhaneni, MD, MPh1; 1Medical and Experimental Mycology Group, Corporación para Investigaciones Biológicas (CIB), Medellin, Colombia, 2Hospital general de Medellin “Luz Castro de Gutiérrez” ESE, Medellin, Colombia, 3Centers for Disease Control and Prevention, Atlanta, Georgia, 4Oak Ridge Institute for Science and Education (ORISE), Oak Ridge, Tennessee, 5Infectious diseases pediatrician, Universidad de Cartagena, Cartagena, Colombia, 6Centers for Disease Control and Prevention, Atlanta, Georgia
Session: 56. Fungal Disease: Management and Outcomes
Thursday, October 4, 2018: 12:30 PM
Results. Out of 835 VAD patients screened, there were 57 candidemia episodes across 38 patients resulting in an incidence of 6.2%. C. glabrata was the most common species (13/34, 38.2%), followed by C. albicans (10/38, 26.3%), C. parapsilosis (6/38, 15.8%), C. tropicalis (5/38, 13.2%), and C. krusei (3/38 (7.9%). Ten patients had an echinocandin nonsusceptible first isolate (26.3%). In patients with recurrent candidemia, echinocandin nonsusceptibility rose as high as 55.6%. Candida species was the only independent risk factor for antifungal nonsusceptibility (OR, 1.9; 95% CI, 1.0–3.4). Micafungin was associated with early initial antifungal therapy and patients required salvage therapy with amphotericin and/or combination therapy (18.4%). Nineteen patients died prior to discharge (50.0%) and 29 patients died within 1 year (76.3%). Independent risk factors for in hospital mortality included APACHE II score (OR, 1.4; 95% CI, 1.1–1.8) and persistent candidemia (OR, 12.9; 95% CI, 1.3–129.6). Only three patients survived to heart transplant (7.9%). Conclusion. Resistance and mortality rates in this patient population are extremely high. Micafungin was the most common antifungal used but antifungal choice did not appear to impact 1 year mortality. While this is the largest cohort of patients with VAD-associated candidemia to date, larger, prospective studies are needed to guide management of these infections.
Disclosures. N. D. Beyda, Astellas: Grant Investigator and Scientific Advisor, Consulting fee and Research grant.

380. Drosophila melanogaster as a Feasible Model for Large-Scale Studies of Virulence Mechanisms and Antifungal Drug Efficacy in Candida auris Candidiasis
Ashwini Bandi1, Sebastian Wurster, MD, PhD2, Nitya M. Raman, PhD3; Nathaniel Albert, MD, PhD4; John’s School, Houston, Texas, 1Departement of Medical and Experimental Mycology Group, Corporación para Investigaciones Biológicas (CIB), Medellin, Colombia, 2Hospital general de Medellin “Luz Castro de Gutiérrez” ESE, Medellin, Colombia, 3Department of Infectious Diseases Infection Control and Employee Health, The University of Texas MD Anderson Cancer Center, Houston, Texas, 4University of Houston College of Pharmacy, Houston, Texas
Session: 56. Fungal Disease: Management and Outcomes
Thursday, October 4, 2018: 12:30 PM
Background. Candida auris is an emerging multi-drug resistant human pathogen. Experimental data on the pathogenicity of C. auris is scarce, especially regarding its virulence compared with C. albicans. Additionally, studies of drug efficacy against C. auris rely on conventional animal models that are laborious and low throughput; alternative, less cumbersome models are desirable. To that end, we developed a D. melanogaster fly infection model. Methods. We injected 2-week-old Tol^ts1001/Tol^ts1002 female flies with a needle dipped in Candida solutions (10^6 yeast cells/mL) in the dorsal side of the thorax. Flies were infected with different C. auris strains (source: CDC/IFA) and a C. albicans strain for drug protection studies. C. auris isolate AR-BANK#0386 (MBC: fluconazole (FLC) > 64, posaconazole (PZA) 0.125–0.25, isavuconazole (ISA) 0.25–1, voriconazole (VRC) 0.5–2 μg/mL) was used. We assessed survival differences associated with different inocula (10^6 to 10^7 yeast cells/mL) and yeast strains. Moreover, protection conferred by addition of FLC, VRC, ISA, PZA, or ISA combined with 5-Fc (flucooxytine) and/or nikkomycin Z (NikZ) to fly food was studied. Three independent runs were performed for each experiment. Results. All 4 C. auris strains and C. albicans exhibited comparable in vitro growth rates. All strains of C. auris were significantly more virulent than C. albicans (P < 0.001), with all flies dying by day 7 post-infection. C) FLC, VRC, ISA, FLC+5-Fc, FLC+NikZ, or FLC+NikZ+5-Fc fed flies infected with C. auris #0386 had comparably poor survival outcomes compared with untreated C. auris #0386-infected flies. Interestingly, survival rates were improved in Posa-fed infected flies compared with untreated controls.

Disclosures. All authors: No reported disclosures.