

voriconazole (VORI) and amphotericin (AMB) and aggressive surgical debridement. Antifungal susceptibilities (AS) and relation to outcomes are yet to be described.

**Methods.** Between 2009 and 2013, military trauma patients with initial unique and serial (>3 days after initial isolation) molds isolated from wounds and admitted to Brooke Army Medical Center as part of the Trauma Infectious Disease Outcomes Study were assessed. The AS to AMB, VORI, posaconazole (POSA), isavuconazole (ISA), itraconazole, and caspofungin were determined by broth microdilution with CLSI breakpoint interpretations for *Aspergillus* spp. and mucormycetes (MM).

**Results.** Included are 18 patients with 28 initial mold isolates with 72% of IFI diagnosed via histopathology. All patients were male with a median of eight operations. There was a median of 11 days post-injury to mold culture. Initial isolates were five *Aspergillus* spp., three MM, three *Fusarium* spp., and combinations of three *Aspergillus* and MM, two *Aspergillus* and *Fusarium*, one *Aspergillus* and *Bipolaris*, one MM and *Fusarium*. *A. flavus* (AFL) and *A. fumigatus* (AFU) were all susceptible to AMB and POSA and 25% of AFL were intermediate to VORI. Four *A. terreus* (AT) isolates had MICs to AMB of 0.25, 1, 2, and 4, and were susceptible to VORI. ISA MIC50 and 90 were one and two for *Aspergillus* spp. *Fusarium* spp. MICs were >16 for VORI, POSA, and ISA, with AMB MIC50/90 of two and three. Among MM isolates, 86% were susceptible to AMB and 29% to POSA, and ISA MIC50 and MIC90 were 8 and >16. Five patients had serial isolates. One with serial AFL and AFU received no antifungal therapy, one with AT was treated with VORI, AMB, and POSA, and one with AFL was treated with AMB with no new resistance. The patient with serial MM was treated with AMB and VORI and remained resistant to POSA, but susceptible to AMB. Serial *A. elegans* acquired new POSA and AMB resistance and ISA MIC increased from 4 to 16 after AMB and VORI exposure.

**Conclusion.** Antifungal exposure to AMB and VORI was not associated with new resistance within *Aspergillus* spp., but 50% of MM exposed to this combination developed POSA and AMB resistance. Despite resistance of *Fusarium*, it was not isolated on subsequent debridements.

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### 161. Safety and Efficacy of Anidulafungin in the Treatment of Invasive Candidiasis in Children

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**Background.** Treatment with an echinocandin is recommended as first-line therapy of patients with invasive candidiasis including candidemia (ICC). Little is known about the efficacy and safety of anidulafungin (ANID) for the management of ICC in children.

**Methods.** Subjects aged 1 months to 17 years with ICC were enrolled into a prospective, open-label, non-comparative, multi-center, global study (NCT00761267) to receive ANID (3 mg/kg on day 1, 1.5 mg/kg daily thereafter). An interim analysis was completed in children 2–17 years. Subjects were to receive ANID for at least 10 days up to 35 days. A central venous catheter suspected as a site of infection was to be removed. A switch to oral fluconazole could be made after day 10. Treatment was required for at least 14 days after two negative cultures separated by 24 hours. Efficacy, based on a determination of global response (combination of clinical and microbiological response), was assessed at end of IV treatment (EOIVT), end of treatment (EOT), 2- and 6-week follow-up. Safety was assessed through 6-week follow-up.

**Results.** In total, 48 subjects (18, 2 to <5 years; 30, 5–17 years) received at least 1 dose of ANID (mean 11 days; range 1–35 days) and were assessed for safety. Forty-seven subjects had microbiologically confirmed ICC and were evaluated for efficacy. The most common baseline pathogens were *C. albicans* (38%) and *C. parapsilosis* (26%). Forty-four (93.6%) subjects had candidemia only. Global response success rates at EOIVT and EOT were 72.3 and 74.5%, respectively. All subjects reported at least one treatment emergent adverse event (AE) with diarrhea (22.9%), vomiting (22.9%), and pyrexia (18.8%) being most frequent. Five subjects discontinued treatment due to AEs of which four [increased transaminases (2), vomiting, pruritus generalis] were considered related to ANID. All-cause mortality by the 2- and 6-week follow-up visit was 12.5 and 14.6%, respectively. Of the seven deaths during the study, one was considered related to ICC; two were related to disease progression (Ewing's sarcoma, medulloblastoma); the remaining were related to other conditions (intracranial hemorrhage, sepsis/septic shock, and respiratory failure).

**Conclusion.** Anidulafungin was effective with an acceptable tolerability and safety profile in children aged 2–17 years diagnosed with ICC.

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### 162. Invasive Mold Infections (IMIs) of the Central Nervous System (CNS) in Patients with Hematologic Cancer (HC) (2000–2016): Uncommon but Deadly

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**Background.** There is paucity of data regarding IMIs of the CNS in patients with HC or stem cell transplantation (SCT).

**Methods.** Review of the records of patients with HC and/or SCT recipients who were diagnosed with CNS IMIs at MD Anderson Cancer Center (1/1/2000–5/31/2016). IMIs were classified as proven or probable (EORTC/MSG criteria). We excluded patients with mixed CNS infections. Risk factors for survival at day 42 post diagnosis (dx) were assessed. A multivariate logistic regression analysis was performed to identify independent predictors of mortality.

**Results.** We identified 40 patients (16 proven; 40%). Most patients were white (29; 73%) and male (33; 83%). Median age was 58 years. The most common HC was acute leukemia (23; 58%). Seventeen patients (43%) were SCT recipients; 13 (76%) had GVHD. Most patients had active HC and neutropenia at dx (38; 95% and 21; 53%, respectively). Twenty-seven patients (68%) were in the ICU at dx. *Aspergillus* sp. (13; 33%) and *Mucorales* (8; 20%) accounted for >50% of cases. CNS IMIs were deemed to be secondary to direct extension or hematogenous spread in 9 (23%) and 31 (77%) patients, respectively. In the latter group, 28/31 (90%) had fungal pneumonia. Of the 27 and 9 patients who had *Aspergillus* galactomannan antigen tested from serum and CSF, respectively, 18 had positivity in serum (66%) and 3 in CSF (33%). Most patients (30; 75%) had exposure to mold-active agents within 30d of dx. Most patients (34; 85%) received lipid AMB and were treated with combination therapy (33; 83%). Most CNS lesions presented as ring-enhancing abscesses radiographically (26; 65%). Absence of giant cells and granulomas in the pathologic examination of the brain lesions were associated with increased 42 days mortality (0% vs. 70%,  $P = 0.01$  and 0% vs. 60% in those who survived,  $P = 0.03$ , respectively). In multivariate analysis, co-infection at the time of dx was associated with increased mortality (OR: 16.5, 95% CI: 1.4–198.3,  $P = 0.03$ ) while steroid tapering was associated with decreased mortality (OR: 0.06, 95% CI: 0.01–0.53,  $P = 0.01$ ). There was a trend towards protective role of surgical drainage (OR<sub>n</sub> = 0.18, 95% CI = 0.03–1.14,  $P = 0.07$ ).

**Conclusion.** CNS IMIs occur in ill patients with active HC who are often pre-exposed to antifungals in pathology, immune response in pathology, steroid tapering and possibly surgical drainage are associated with improved outcome.

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### 163. Risk Factors for Candidemia as Compared with Patients with Negative Blood Cultures Placed on Empiric Micafungin

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**Background.** Numerous risk factors have been linked to invasive candidiasis; however, they are nonspecific and often trigger empiric antifungal therapy in a large number of patients. Identification of more precise predictors could promote judicious use of empiric echinocandins. Ultimately, this could decrease antifungal exposure, development of resistance, and associated costs.

**Methods.** This was a retrospective review of patients admitted to Baylor University Medical Center from 10/1/14 to 10/25/16. Patients with positive blood cultures for *Candida* spp. were compared with a randomly selected cohort of patients on empiric micafungin for 3 or more days and with blood cultures negative for *Candida* spp. This study excluded patients on prophylactic antifungals and patients with positive abscess cultures but negative blood cultures for *Candida* spp. Data was analyzed using the  $\chi^2$  test, *t*-test comparing means, and logistic regression as applicable.

**Results.** There were 127 patients with candidemia and 134 patients without candidemia on empiric micafungin. Factors associated with candidemia included positive 1,3- $\beta$ -D-glucan assay (86.4% vs. 33.3%,  $P < 0.001$ ), total parenteral nutrition (TPN) (26.0% vs. 15.7%,  $P = 0.040$ ), and multifocal *Candida* colonization (35.3% vs. 4.5%,  $P < 0.001$ ). Patients without candidemia on empiric micafungin were more likely to receive antibiotic therapy in the previous 10 days (55.9% vs. 79.9%,  $P < 0.001$ ) and more likely to be taking immunosuppressive medications (11.0% vs. 30.6%,  $P < 0.001$ ). There was no difference in mean length of stay (25.5 days vs. 27.3 days,  $P = 0.631$ ) or 30-day all-cause mortality (32.3% vs. 23.9%,  $P = 0.131$ ) between patients with candidemia and patients on empiric micafungin, respectively.

**Conclusion.** A negative 1,3- $\beta$ -D-glucan assay in patients without multifocal *Candida* colonization or receiving TPN was inversely correlated with invasive candidiasis, as defined by candidemia. Therefore, the absence of these factors may be used to deescalate empiric micafungin therapy. Risk factors for candidemia identified in this study are consistent with previously published literature. These findings highlight an opportunity to improve empiric micafungin prescribing patterns at our institution.

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