1150. Breakthrough Invasive Fungal Disease (IFD) in Patients with Acute Myeloid Leukemia (AML)

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Background. Despite the use of antifungal prophylaxis, IFD remains a serious complication of AML causing extensive morbidity and mortality. This study seeks to clarify our experience with breakthrough infections in patients with AML.

Methods. This retrospective study included all adult patients undergoing induction chemotherapy for a new diagnosis of AML from June 2014 – Dec 2019 at the University of Michigan Hospital. Chart review determined co-morbidities, chemotherapy regimens, allogeneic hematopoietic cell transplant (HCT), antifungal prophylaxis, development of IFD, and outcomes. Patients were followed for 1 year from first induction chemotherapy. EORTC-MSGERC definitions for proven, probable, and possible IFD were used, as were MSGERC-ECMM definitions for breakthrough IFD.

Results. Of 251 patients, mean age was 61.8±14 years, 55% were men, and 73 (29%) underwent allogeneic HCT, 52 of whom developed GVHD. Thirty-one patients developed 33 IFD (12.3%): 4 proven, 12 probable, and 17 possible IFD. Four IFD occurred in patients with GVHD post-HCT; all were treated with high dose steroids and one received an anti-TNF agent. Of the 16 proven and probable IFD, 8 were breakthrough IFD. Mucormycosis occurred in 2 patients on voriconazole; fusariosis occurred in 3 patients taking fluconazole (2), or posaconazole (1). Aspergillosis occurred in 2 patients taking isavuconazole (1) or fluconazole (1), and pneumocystosis occurred in a patient receiving inhaled pentamidine. There were 8 non-breakthrough IFD, including 2 pneumocystosis, 4 aspergillosis, and 2 candidiasis. Risk for IFD increased with subsequent episodes of induction chemotherapy, p=.04.

Six of 8 patients with breakthrough IFD and 5 of 8 without breakthrough IFD died within 12 weeks of IFD diagnosis. Excluding the 15 patients who had only possible IFD, 69% (11/16) patients with proven/probable IFD died compared with 35% (77/220) patients without IFD, p=.01.

Conclusion. Patients with AML remain at risk for fatal IFD despite the use of antifungal prophylaxis. Failure of prophylaxis in our patients who developed breakthrough IFD was associated with a shift towards less common fungi.

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

1151. Candida Colonization Alters Pathogenic Pulmonary Infection in Pediatric Patients with Cystic Fibrosis

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Background. Isolation of *Candida* from the respiratory tract of patients with cystic fibrosis (CF) is common, but its clinical significance remains unclear. We evaluated whether pediatric *Candida* colonization is associated with specific risk factors, co-pathogens, and degree of respiratory disease.

Methods. Using the Military Healthcare System database, we identified 273 pediatric patients with CF who were followed for 938 person-years between 2012 and 2017. To determine whether prevalence was associated with different categorical variables, Fisher's exact tests were performed on 1000 random samples with the constraint that exactly one interval was selected from each individual to generate each sample. When appropriate, follow-up binomial tests were performed to identify species differences. Individuals with a specific *Candida* species isolated in ≥50% of their respiratory cultures were considered colonized. Those with *C. albicans* were analyzed separately from all other *Candida* species. FEV_1 values < 80% predicted were used as a surrogate for degree of respiratory disease.

Results. *Candida* colonization was not associated with degree of respiratory disease, exocrine pancreatic insufficiency, co-existing diabetes, or the presence of a homozygous F508del CFTR mutation. *C. albicans* colonization differed by age, and was least prevalent amongst 0-2 year olds (p=0.031) (Fig 1). Compared to those either not colonized with *Candida*, or colonized with a species other than *C. albicans*, patients colonized with *C. albicans* had lower rates of co-infection with *Aspergillus* (p = 0.041) (Fig 2). Significant differences in *Candida* colonization between groups was also notable for those colonized with *Stenotrophomonas* (p=0.014) and Nontuberculous *Mycobacterium* (p < 0.01), but not for *Staphylococcus aureus* or *Pseudomonas* (all p > 0.1).

Figure 1. C. albicans prevalence differed by age group (p<0.01). Specifically, prevalence was lower in the 0-2 year old age group (p=0.031).

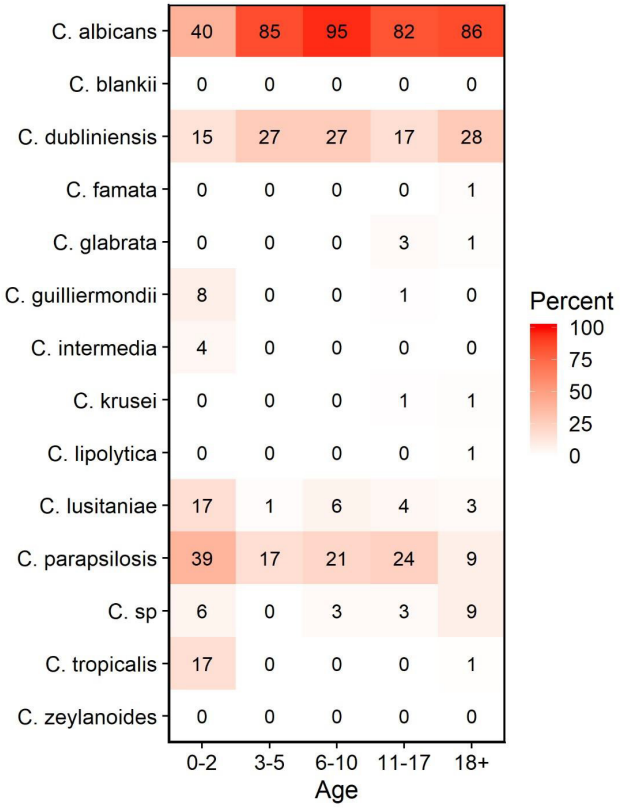
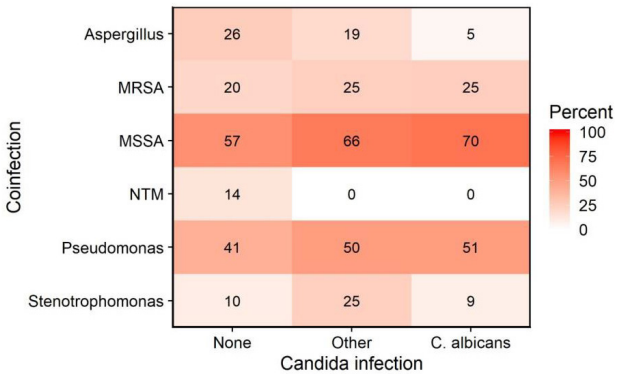


Figure 2. Individuals were grouped into those without a Candida infection (None), those with non-C. albicans colonization (Other), and those with C. albicans colonization. No differences were found with respect to co-infection with MRSA, MSSA, or Pseudomonas. Significant differences were found with respect to Stenotrophomonas (p=0.014), Aspergillus (p < 0.01), and NTM (p < 0.01). The prevalence of Aspergillus in those individuals with C. albicans was lower compared to those with a different Candida infection or no Candida infection (p=0.041). The prevalence of co-infection with Stenotrophomonas was somewhat elevated among those with a non-C. albicans infection (p=0.052).



Conclusion. *C. albicans* likely plays a role in influencing the airway microbiome of patients with CF. The significance of colonization with other *Candida* species warrants further exploration. Our data suggests that further studies are needed to evaluate whether *Candida* may be seen as protective against certain pathogens and therefore this may influence recommendations to treat patients who have CF with antifungals.

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