

**Background.** Biofilms of *Trichosporon asahii* are known to resist the effects of antifungal drugs, but the study of their susceptibility to various abiotic stresses remains sparse. This study was thus undertaken to compare the level of *in vitro* resistance of *T. asahii* biofilm and planktonic cells to various stress factors.

**Methods.** In this study, one *T. asahii* clinical isolate identified by amplifying IGS1 sequencing and one reference strain (NCCPF940033) were used. Biofilm and planktonic cells of *T. asahii* were exposed to increasing concentrations of NaCl (0.5–6 M) and D-sorbitol (3–13 M) for inducing osmotic stress; H<sub>2</sub>O<sub>2</sub> (5–50 mM), menadione sodium bisulfate (0.048–100 mM) and ox bile (1–12%) for oxidative stress; P<sup>H</sup> 1 to 13 for P<sup>H</sup> stress; congo red (600–10,000 µg/mL) for cell wall stress; CuSO<sub>4</sub>·5H<sub>2</sub>O/ZnSO<sub>4</sub>/FeSO<sub>4</sub> (1.25–2,560 mM) and MgSO<sub>4</sub> (250–3,000 mM) for metal stress. The biomass and metabolic activity of biofilms were quantitatively determined by crystal violet method and XTT reduction assay, respectively. Further, spot assay of serially diluted (10<sup>-1</sup> to 10<sup>-6</sup>) planktonic cells was performed on agar plates containing stress and non-stress control to determine relative percentage growth of strains.

**Results.** Biofilm cells of both the strains exhibited significantly higher (ANOVA) stress resistance than planktonic cells and on an average showed at least 100 times more resistant to stresses than planktonic cells [Minimum Biofilm Eradication Concentration (MBEC) vs. Minimum Inhibitory Concentration (MIC)]; H<sub>2</sub>O<sub>2</sub> >50 mM vs. 10 mM, Ox bile >12% vs. 2%, Menadione >100 mM vs. 0.39 mM, Zn/Fe/Cu >2,560 mM vs. 10 mM, Mg >3,000 mM vs. 1,000 mM, NaCl >6 M vs. 1.5 M, D-sorbitol >13 M vs. 5 M and Congo red >10,000 µg/mL vs. 800 µg/mL. Besides optimal P<sup>H</sup> 5–10, extreme acidic and alkaline P<sup>H</sup> led to complete inhibition of viable planktonic cells. Highest biomass reduction (77.2%) and highest viability inhibition (69%) of biofilm were observed at P<sup>H</sup> 3 and 13, respectively. Menadione reduced 86.9% biomass and 89.3% viability which accounted the highest biofilm inhibition.

**Conclusion.** This is the first report on comparing the susceptibility of planktonic and biofilm *T. asahii* cells to various stress factors. The increased resistance of *T. asahii* biofilm may serve as a survival advantage against the host adversity.

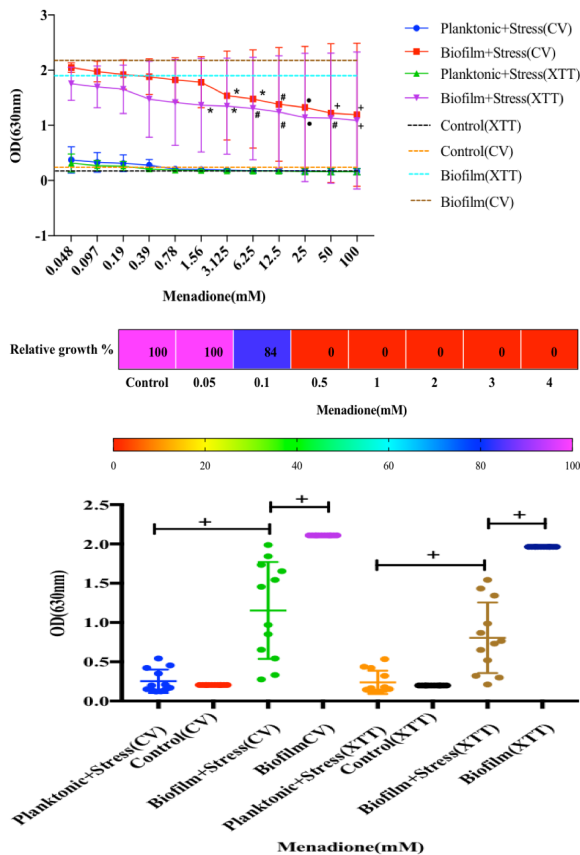


Table 10. *In vitro* activity of stress factors against planktonic and biofilm cells with inhibition percentage

Stress factors	Range	Biofilm			
		Planktonic	MIC	MBEC	Highest biomass inhibition %
H <sub>2</sub> O <sub>2</sub> (mM)	5-50	10	>50	10.4	26.5
Ox bile (%)	1-12	2	>12	81.5	87.6
Menadione (mM)	0.048-100	0.39	>100	86.9	89.3
ZnSO <sub>4</sub> /FeSO <sub>4</sub> /CuSO <sub>4</sub> ·5H <sub>2</sub> O (mM)	1.25-2560	10	>2560	72.3	71.7
MgSO <sub>4</sub> (mM)	250-3000	1000	>3000	4.9 (2000mM)	65.6 (2000mM)
NaCl (M)	0.5-6	1.5	>6	9.1	88.6
D-sorbitol (M)	3-13	5	>13	29.5	33.6
Congo red (µg/ml)	600-10,000	800	>10,000	24.6	23.2
p <sup>H</sup>	1-13	-	-	77.2 (p <sup>H</sup> 3)	69 (p <sup>H</sup> 13)

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

### 265. Clinical Epidemiology of Invasive Fungal Infection with *Aspergillus* and *Mucor* Species in a Tertiary Children's Hospital

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**Session:** 40. Fungal Diagnostics

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**Background.** Patients undergoing hematopoietic stem cell transplantation and patients with hematologic malignancies are at increased risk for acquiring invasive fungal infection (IFI) due to immune system impairment from chemotherapy. Affected patients require prolonged antifungal therapy with the risk of associated toxicity and extended hospitalization due to delay of accurate diagnosis. There is a lack of effective serologic biomarkers and hesitancy to proceed with tissue diagnosis due to thrombocytopenia or other associated risks. Mortality in oncology patients with invasive mycoses is high, with pediatric mortality rates of 30–40% at 12 weeks following diagnosis.

**Methods.** All patients that were admitted to Lurie Children's Hospital between January 2014 and December 2018 and received voriconazole, ambisome, posaconazole and isavuconazole were identified. The following data were retrospectively collected: CT chest and sinus, (1,3)-β-D-Glucan and *Aspergillus* galactomannan, ANC and ALC at diagnosis, blood next-generation sequencing, tissue 18s rRNA, fungal culture, duration of neutropenia and lymphopenia, site of infection, time between underlying diagnosis and development of IFI, surgical intervention and associated mortality.

**Results.** A total of 94 unique patients that received voriconazole were identified. There were 8 proven cases of invasive *Aspergillus* infection the past 5 years, 50% male, mean age 14 years. Only 25% of patients had positive serum *Aspergillus* galactomannan and 37.5% had positive β-D-Glucan. Seven cases were due to *Aspergillus fumigatus* and one case was due to *Aspergillus flavus*. There were 9 patients with mucormycosis and all but one were culture positive. Three patients with *Mucor* had mold identification in blood next-generation sequencing prior to surgery. *Mucor* associated mortality was 22.2%.

**Conclusion.** The majority of pediatric patients with invasive aspergillosis did not have characteristic chest CT imaging findings and serum *Aspergillus* galactomannan was usually negative. There was no associated mortality in invasive *Aspergillus* cases, whereas the mortality rate of invasive mucormycosis was 22.2%. Although we have a small sample size, this is significantly lower compared with published literature.

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

### 266. Clinical Profile and Treatment Outcomes of *Candida auris* Isolates from a Tertiary Care Hospital in South India

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**Background.** *Candida auris* is an emerging multidrug-resistant fungus that is rapidly spreading worldwide. In publications from India, it has already accounted for >5% of candidemia in a national survey of ICUs and as much as 30% of candidemia at individual hospitals, but data on treatment outcomes is scarce. This study reviews the various clinical syndromes in our case series, the treatment regimens we opted and their clinical outcomes.

**Methods.** The present study was a retrospective observational analysis of *Candida auris* isolates obtained from patients admitted in Aster Medcity, Kochi. Duration of study was 4 months (September 2018 to December 2018). Laboratory confirmation of the *Candida auris* isolates was done as per CDC recommendations for Vitek2. Vitek2 was also used for obtaining the antifungal sensitivity pattern for these isolates.

**Results.** We had 18 cases of *Candida auris* identified. The most common syndrome was surgical site infections, 9 out of 18 (50%), followed by Catheter-Associated Urinary Tract Infection (CAUTI 5/18; 28%). We had 3 patients with Central Line-Associated Blood Stream Infections (CLABSI) and one patient who had secondary peritonitis. The overall mortality was 28% (5/18)—mostly contributed by the CLABSI. Considering breakpoints from CLSI as well as CDC, all isolates had their minimum inhibitory concentration (MIC) in the sensitive range for Caspofungin. Both Amphotericin b and Voriconazole had MICs in susceptible range for less than 50% of the isolates and almost all isolates were having very high MICs for Fluconazole, highlighting the increased levels of antifungal resistance which has made this *Candida* species notorious.

**Conclusion.** *Candida auris* is an emerging nosocomial pathogen in India with serious outbreak potential. The anti-fungal susceptibility is indicative of a multi-drug-resistant pattern—with favorable MIC to Echinocandin and Voriconazole. Complicated bloodstream infections had high mortality inspite of early Echinocandin use. Of note, 6 patients out of 18, were managed successfully without any anti-fungal use; as they had either mild UTI (fever spikes resolved with catheter removal) or superficial SSI which could be treated with topical wound management.