BSI. Meticulous aseptic technique for invasive procedures, device and wound care may help prevent *C. auris* BSI in colonized patients.

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

**2040. Clinical Application of *Aspergillus* Lateral Flow Device (*Asp*LFD) in Bronchoalveolar Lavage (BAL) Fluid of Patients with Classic Risk Factors for Invasive Pulmonary Aspergillosis (IPA)**

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***Background.*** IPA causes high morbidity and mortality in immunocompromised patients, but diagnosis remains challenging. A newly formatted *Asp*LFD targets specific *Aspergillus* antigen JF5, but reported results for this test are variable. We evaluated the performance characteristics of this new *Asp*LFD in BAL fluid of patients with IPA.

***Methods.*** Samples tested were from patients with classic risk factors for IPA defined by EORTC/MSG criteria and that had been prospectively banked in our BAL repository. Each case of IPA identified was matched to two high-risk control patientst without IPA or other invasive fungal infection. Samples were thawed, vortexed, centrifuged, and 100 µL of supernatant was applied to the *Asp*LFD. Results were interpreted at 15 minutes as +, ++, +++, or negative by three independent, blinded observers. Test characteristics, including sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) were calculated.

***Results.*** Samples from 14 patients with proven/probable IPA by EORTC/MSG criteria and 28 control patients without IPA were tested. Median age was 58 (range 22–87); 28 were men. Age and gender distribution were similar between cases and controls. Among IPA cases, 9 were on T cell depleting agents, 4 on high-dose steroids, and 3 had prolonged neutropenia. Among non-IPA controls, risk factors were T-cell depleting agents (17), high-dose steroids (11), and stem cell transplant (2). Of the 14 patients with IPA, *Asp*LFD was positive in 3, negative in 9; in 2, the internal control line did not display and these were considered invalid. Of 6 patients receiving an azole, three had a positive *Asp*LFD test. *Asp*LFD was negative for all 28 BAL in the non-IPA group. *Asp*LFD showed low sensitivity (25%) and high specificity (100%); PPV was 100% and NPV was 75%. Accuracy of the test was 77.5%.

***Conclusion.*** A positive *Asp*LFD test in BAL of patients with classic risk factors for IPA could be useful for ruling in proven/probable IPA because of its high specificity. However, the use of *Asp*LFD as a screening test for IPA is limited by its poor sensitivity.

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

**2041. Impact of T2 *Candida* Panel on Species Specific Anti-fungal De-escalation**

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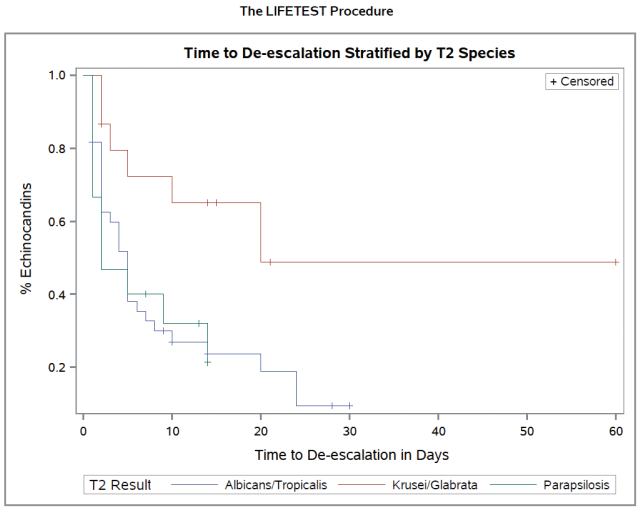
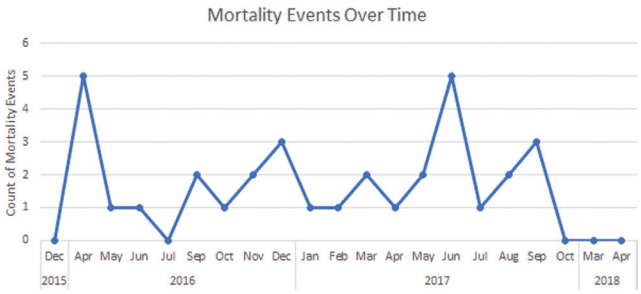
***Background.*** Empiric antifungal treatment is recommended in patients with suspected candidemia given the 20–40% associated mortality. T2Candida Panel (T2) is approved for the rapid detection directly on a blood sample of candidemia caused by *C. albicans/C. tropicalis (CA/CT), C. parapsilosis (CP), C. glabrata/C. krusei (CG/CK).* Our hospital implemented a candidemia management protocol utilizing T2 to identify candidemia in high-risk patients. We examine the potential for antifungal stewardship by analyzing T2 species-specific result-based antifungal de-escalation.

***Methods.*** Retrospective analyses were conducted on 70 T2-positive patients identified in 2016–2017 at our hospital. The primary endpoint is time to de-escalation from echinocandin to fluconazole based on T2 species identified. Secondary endpoints included time to T2 positivity, and identification of risk factors for mortality. Univariate logistic regression was used to determine association between risk factors and mortality. Multivariate logistic regression models were created using forward selection to model the odds of mortality. Time to de-escalation of echinocandins was modeled using Kaplan–Meier estimators.

***Results.*** In T2-positive results for *CA/CT* or *CP*, 50% of patients were de-escalated to fluconazole therapy within 96 hours. In T2-positive result for *CG/CK*, *50%* of patients were de-escalated in 20 days (figure). The turnaround time (TAT) for T2 6 hours (3–12 hours). Overall mortality was 47% in the T2-positive cohort and was unchanged over the study period. Univariate analysis showed statistically significant associations between mortality and sepsis diagnosis, hypotension, abnormal WBC count, and tachycardia ($P < 0.05$). Multivariate analysis showed tachycardia, age, and presence of prosthetic devices, taken together, fit the best model to predict odds of mortality ($P < 0.05$).

***Conclusion.*** T2 proved useful in promoting de-escalation of echinocandin to fluconazole therapy in patients with fluconazole-susceptible *Candida* species. The rapid TAT of T2 promotes timely de-escalation of enchinocandins. Overall mortality in patients with suspected candidemia remains unaffected despite rapid diagnostics and early empiric antifungal therapy.




***Disclosures.*** **G. Alangaden**, T2 Biosystems: Speaker's Bureau, Educational grant and Speaker honorarium.

**2042. Clinical Application of *Asp*ID PCR Alone and in Combination with *Aspergillus* Lateral Flow Device (*Asp*LFD) in Bronchoalveolar Lavage (BAL) Fluid of Patients with Classic Risk Factors for Invasive Pulmonary Aspergillosis (IPA)**

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***Background.*** Early diagnosis of IPA is challenging and has a direct impact on mortality. Several diagnostic modalities have been developed with variable performance. *Asp*ID is a new multiplex *Aspergillus* qRT-PCR assay and *Asp*LFD is a rapid test that targets the *Aspergillus* specific antigen JF5; both tests were developed by OLM Diagnostics. We evaluated the performance characteristics of *Asp*ID used alone and in combination with *Asp*LFD on BAL fluid of patients at high risk for IPA.

***Methods.*** Samples had been prospectively banked in our BAL repository. Forty-two samples, 14 from patients with proven/probable IPA by EORTC/MSG criteria and 28 from control patients without IPA, were tested with *Asp*ID and *Asp*LFD. For *Asp*ID, DNA extraction and qRT-PCR were performed per manufacturer instructions. For *Asp*LFD, 100 µL of sample was applied to the device. *Asp*ID and *Asp*LFD results were each read by three different blinded observers. Only patient with a valid result for both tests were included in the analysis. Sensitivity, specificity, and accuracy of *Asp*ID alone and in combination with *Asp*LFD were calculated.

***Results.*** Of the 42 samples, 22 were excluded because the *Asp*ID internal extraction control showed the assay to be invalid and one sample was excluded because the *Asp*LFD internal control line was not visible. Thus, 19 patients were analyzed, eight with IPA and 11 without IPA. Among eight IPA cases, seven were positive by *Asp*ID and one was negative; two tested positive by *Asp*LFD and six were negative. Of the 11 control patients without IPA, four were positive by *Asp*ID and seven were negative; all 11 were negative by *Asp*LFD. *Asp*ID sensitivity was significantly higher than that of *Asp*LFD (87.5% vs. 25%, $P = .0001$), but specificity of *Asp*LFD was superior to that of *Asp*ID (100% vs. 64%, $P = 0.049$). Accuracy was 74% for *Asp*ID and 68% for *Asp*LFD. When deciding whether doing both tests was beneficial for diagnosis, union analysis showed the sensitivity to be 87.5% and the specificity to be 64%. Accuracy was not improved and remained at 74%.

***Conclusion.*** *Asp*ID had higher sensitivity than *Asp*LFD and *Asp*LFD had higher specificity than *Asp*ID. Using both tests in combination did not improve the ability to diagnose IPA in patients with classic risk factors.

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

**2043. T2-*Candida* (T2MR) vs. B-D-Glucan (BDG) for Preemptive Antifungal Stewardship in the Intensive Care Unit (ICU)**

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***Background.*** Timely empiric antifungal therapy is essential in the management of candidemia but must be weighed with the risks of overuse. The purpose of this study was to compare preemptive antifungal therapy and outcomes following a negative T2MR or BDG test result among ICU patients.

***Methods.*** IRB-approved, quasi-experiment in a four hospital system, May 2014–October 2017. T2MR implemented November 2015. Inclusion: preemptive anidulafungin (AFG), negative blood culture(s) and either a negative BDG by system guideline interpretation or T2MR. Exclusions: transplant, neutropenia, or another documented indication for antifungals. Primary endpoint: days of preemptive AFG. Secondary outcomes: ICU and hospital length of stay, incidence of invasive candidiaisis after discontinuation of preemptive therapy, reinitiation of antifungal therapy in the index admission, and inpatient mortality. Early discontinuation defined as single dose only.

***Results.*** A total of 179 patients included: BDG $n$ = 79, T2MR $n$ = 100. Median age: BDG 63 (50, 71); T2MR 59 (50, 70). Baseline SOFA score: 8 (6,11) BDG; 12 (8,15) T2MR. *Candida* score ≥ 3: 43 and 41%, respectively. Preemptive AFG: 2 (1,5) days BDG and 1 (1,2) days T2MR ($P$ < 0.001). Subsequent proven candidemia: 2 (2.5%) BDG; 1 (1%) T2MR. Antifungal reinitiated: 13 (17%) BDG; 12 (12%) T2MR. Mortality: 35 (44%) BDG, 59 (59%) T2MR, $P$ = 0.07. AFG was discontinued early in 91 (51%) patients. T2MR was the only characteristic associated with early D/C (Table 1).

***Conclusion.*** T2MR testing facilitates use of early preemptive echinocandin therapy in ICU patients and minimizes unnecessary prolonged therapy when compared with use of BDG.

**Table 1.** Early Discontinuation

| | Early D/C ($n$ = 91) | Continuation ($n$ = 88) | UnadjOR (95% CI) |
|---|---|---|---|
| T2MR | 59 (65%) | 41 (47%) | 2.1 (1.2–3.9) |
| SOFA > 7 | 74 (81%) | 70 (79%) | 1.1 (0.5–2.3) |
| Vasopressors | 45 (50%) | 50 (57%) | 0.7 (0.4–1.3) |
| Candida score > = 3 | 35 (39%) | 40 (46%) | 0.8 (0.4–1.4) |
| Severe sepsis | 86 (95%) | 82 (93%) | 1.3 (0.4–2.3) |
| Surgery | 25 (28%) | 30 (34%) | 0.7 (0.4–1.4) |
| TPN | 7 (8%) | 11 (13%) | 0.6 (0.2–1.6) |
| Multifocal colonization | 7 (8%) | 12 (14%) | 0.5 (0.2–1.4) |

***Disclosures.*** **G. Alangaden**, T2 Biosystems: Speaker's Bureau, Educational grant and Speaker honorarium.

**2044. Utility of Serum B-D Glucan Assay for Diagnosis of Invasive Fungal Infections in Solid Organ Transplant Recipients**

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***Background.*** B-D glucan (BDG) assay is a noninvasive test for presumptive diagnosis of invasive fungal infections (IFI). The utility of BDG assay and cut off values for positive, intermediate or negative test has been primarily studied in patients with hematological malignancies. However, the role of BDG in solid-organ transplant (SOT) recipients is not well described. The aim of this study was to evaluate the utility of serum BDG assay for IFI diagnosis in SOT recipients.

***Methods.*** We retrospectively reviewed 200 patients who underwent SOT at Mayo Clinic and had BDG assay done for suspected IFI between January 1, 2013 and April 1, 2018. IFI cases were classified as proven, probable, and possible using EORTC/MSG criteria. Cases where BDG assay was used for treatment response follow-up or where results were inconclusive were excluded. BDG assay was performed at Viracor Eurofins Clinical Diagnostics lab. For the purpose of this study, a value of ≥80 pg/mL was considered positive and <80 pg/mL (intermediate or negative) was considered negative.

***Results.*** A total of 117 tests from 104 patients met study inclusion criteria. The mean patient age was 56.2 years and 71 (60.7%) were male. Type of SOT included kidney (64), liver (30), heart (26), pancreas (6), and lung (6). BDG assay was positive in seven out of 10 invasive aspergillosis, two out of 3 invasive candidiasis, three out of four pulmonary coccidioidomycosis, and one *Pneumocystis jirovecii* pneumonia (Table 1). Overall, BDG assay was positive in 72.7% of cases (16/22) where a BDG containing organism was the etiology of invasive infection (sensitivity). It was false-positive in seven cases where a BDG containing organism was not identified. Overall specificity of the assay was 92.6% (Table 2).

***Conclusion.*** BDG assay is a useful adjunctive diagnostic aid for distinguishing IFI cases from those without IFI in SOT recipients.

**Table 1**

| Organism | BDG Positive | BDG Negative |
|---|---|---|
| Proven Aspergillosis (4) | 3 | 1 |
| Probable Aspergillosis (5) | 3 | 2 |
| Possible Aspergillosis (1) | 1 | 0 |
| Ochroconis infection (1) | 1 | 0 |
| Other IFI (pathology and smear positive with negative culture) (2) | 2 | 0 |
| PCP (1) | 1 | 0 |
| Invasive Candidiasis (3) | 2 | 1 |
| Pulmonary Histoplasmosis (1) | 0 | 1 |
| Pulmonary coccidioidomycosis (4) | 3 | 1 |
| Other (non BDG) diagnoses (95) | 7 | 88 |

**Table 2**

| | IFI Present | IFI Absent | Total |
|---|---|---|---|
| **BDG positive** | 16 | 7 | 23 |
| **BDG negative** | 6 | 88 | 94 |
| **Total** | 22 | 95 | |

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**2045. Pitfalls in the Use of MALDI TOF Mass Spectrometry for the Identification of Problematic Yeast Isolates from a Historical Collection**

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***Background.*** The identification of yeast traditionally entails macroscopic/microscopic findings and biochemical testing. Recently, MALDI TOF MS has replaced traditional methods for identification as a proposed new standard. We performed identification of previously unidentifiable yeasts from a collection in the United States.

***Methods.*** The Mycoses Study Group (MSG) collected 2,947 *Candida* isolates from 1,911 patients as part of two U.S. studies between 1995 and 1999. The identification of the isolates was done in 2002 using API 20 c aux with supplemented standard mycological and biochemical test (corn meal agar, germ tube and the Murex ID system). Ninety-four isolates could not be identified at that time. For this study, the isolates were defrosted, plated on Sabureau Dextrose agar, and incubated at 30°C for 48 hours. We then sub-cultured again in Blood Agar. Isolates when then tested by MALDI TOF MS following the methodology for the Bruker MALDI biotyper.

***Results.*** In the first attempt, 65/94 (69%) isolates were identified. The remaining 29 samples were re-tested with a yield of 21/29 (72.4%) identified isolates. The remaining isolates had to be identified with another round of MALDI TOF and further biochemical testing. The table below shows the final identification of the isolates.

***Conclusion.*** MALDI TOF MS is rapidly becoming a reference method for yeast identification. However, in a historical collection of yeast that could not be identified by conventional biochemical methods, it took up to three rounds of MALDI TOF MS with a yield of ~70% per round, and additional biochemical testing, for identification of all isolates. Continuing validation of MALDI TOF MS for identification of difficult yeast isolates is warranted.