367. Influence of Body Weight and Outcomes in Candidemia
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Background. Obesity patients may have altered pharmacokinetic parameters when compared with normal weight patients due to their body habitus and altered drug clearance. Results from retrospective cohort studies suggest higher echinocandin dosing may be needed to achieve adequate serum concentrations in obese patients. The purpose of this project is to compare patient outcomes between normal weight and overweight patients that receive an echinocandin for candidemia.

Methods. We conducted a retrospective cohort at five hospitals with an antimicrobial stewardship program. Dates: January 1, 2014–January 31, 2018. Included: 218 years, Candida species positive blood culture or T2MR, anidulafungin FDA label dose for ≥72 hours. Exclusion criteria: neutropenia, endocarditis, osteomyelitis, meningitis, immunosuppression, or recurrence. Primary outcome: 30-day all-cause mortality. Secondary outcomes: 14-day clinical cure rates, Candida eye involvement, recurrence, antifungal restart, and optimal azole dose.

Results. One hundred seventy-three patients included: 121 blood; 73 T2MR. Obesity: more female, pulmonary disease. Underweight: less surgery. Most common species: C. albicans (33%), C. glabrata (33%). More C. parapsilosis in obese (36.4%). Low anidulafungin minimum inhibitory concentrations (MIC) in all groups, but elevated in C. parapsilosis. No association between body mass index and mortality: underweight (36.4%), normal (25.8%), overweight (32.0%), obese (33.9%), morbidly obese (11.0%) vs. nonobese (10.0%). Both infection-related and total hospital lengths of stay were longer for obese patients at 42 vs. 22 days (P = 0.05) and 115 vs. 52 days (P = 0.19), respectively. In hospital mortality was similar: (21.4% vs. 15.3%; P = 0.36).

Conclusion. Despite quicker receipt of definitive antifungal therapy, more frequent ID consultation and echinocandin usage, obese patients had longer duration of candidemia, increased infection-related length of stay, and numerically higher mortality.

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368. Community-Onset Candidemia: Trends Over 7 Years
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Background. Candidemia is often hospital acquired. With the inpatient–outpatient shift in healthcare, many cases are acquired in the community. We present a novel community-acquired candidemia.

Methods. We reviewed blood culture results (January 1, 2010–December 31, 2017), selected patients with candidemia, defined the place of onset (community onset [CO]; 0–3 days after admission; hospital onset [HO]: ≥4 days), the source and species distribution and compared CO and HO cases.

Results. We encountered 210 candidemia episodes. The rate of candidemia (0.6-1.2/1,000 discharges) and species distribution fluctuated without a clear trend. CO accounted for 92% (43.8%) episodes including 83 healthcare-related (CO-HC) and 9 (4.3%) without healthcare exposure (CO-A). CO-HO proportion did not significantly change over time. Source and species distribution were similar in CO and HO cases except for higher proportion of intravenous drug users (IVDA), soft tissue/bone (STB) sources, and a trend toward more UTI in CO (table). Comparison of cases with C. albicans and C. glabrata revealed that C. glabrata was more common in STB (51.5 vs. 33.0%; P = 0.005), and hemodialysis-dependent (HD) cases (63.6% vs. 38.5%; P = 0.04), and tended to be less common in UTI (25.9% vs. 45.4% in other sources; P = 0.09).

Conclusion. Candidemia remains a healthcare-related event but a significant portion is CO. CO-A is limited to IVDA and patients with comorbidities. Sources and primary distribution was similar in CO-HC and HO cases except for more IVDA in HO. UTI in CO-HC. C. albicans remained more common but C. glabrata surpassed C. albicans among diabetics and HD.

Candidemia: Comparison of CO-A, CO-HC, and HO Cases. Results: Patient Characteristics and Candida Species

| Onset (days following admission) | CA | DM | HO | IVDA | VA | HA | UTI | STB | O | U | Other |
|-------------------------------|----|----|----|------|----|----|-----|-----|---|---|-------|
| CO-HC (83)                    | 11.1 | 11.1 | 0.0 | 44.4 | 0.0 | 33.3 | 22.2 | 33.3 | 22.2 | 44.5 | 33.3 |
| CO-HA (118)                   | 25.3 | 42.2 | 21.7 | 9.6 | 32.9 | 12.0 | 22.0 | 8.5 | 25.6 | 41.0 | 36.9 |
| HO (118)                      | 27.1 | 34.7 | 11.9 | 5.1 | 28.8 | 21.2 | 11.9 | 3.4 | 34.7 | 47.5 | 31.4 |
| P                             | 0.4 | 0.9 | 0.1 | 0.03 | 0.02 | 0.5 | 0.5 | 0.06 | 0.004 | 0.4 | 0.5 |

Cancer; diabetes; vascular; abdomen/pelvis; urinary tract; soft tissue/bone; other-unknown; albicans; glabrata; a: chi square test.

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369. Using Hybrid Models and Blockchain Technology as a Means to Develop a Novel Propensity Score for Candidemia and Invasive Candidiasis
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Session: 56. Fungal Disease: Management and Outcomes
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Background. Early initiation of empiric antifungal therapy has been shown to decrease morbidity and mortality among patients with candidemia/invasive candidiasis (C/IC). However, the initiation of appropriate antifungal therapy is frequently delayed due to the severe limitations in early diagnosis. The goal of this study is to develop a high risk scoring system that can be used to identify patients who are most likely to benefit from preemptive antifungal therapy. The proposed new methodology combines hybrid modelling and blockchain technology.

Methods. Our approach is novel and using expert physicians’ perception of C/IC risk factors with those described in the hospitals through a set of models (hybrid model building from primary and secondary data). The goal is to improve the early detection of C/IC and initiate antifungal therapy. Once candidate hybrid models are derived, blockchain technology will be utilized. The methodology is based on vectors consisting of the ranking of candidiasis risk factors. These vectors will be constructed based on expert clinicians rank scores of known risk factors. Such methods are different than the usual statistical rank correlation computations, such as Spearman’s rank correlation, etc.

Results. Preliminary analysis suggests three potential models. Model 1: uses the following order of variables, by their relative importance: (1) major surgery within 0–3 days, (2) TPN-7–3 days, (3) steroids 0–3 days, (4) ECMO, (5) hemodialysis 0–3 days, (6) diabetes mellitus. Model 2 includes: (1)multifocal Candida colonization, (2) central venous catheter ≥3 days, (3) IVAD, (4) medical ICU, (5) APACHE score >20, (6) mechanical ventilation. Model 3 includes (1) pancreatitis ≥710 days, (2) diabetes mellitus, (3) hemodialysis ≥0 days, (4) central venous catheter ≥0 days, (5) APACHE score >20. The proposed new methodology combines hybrid modelling and blockchain technology.

Conclusion. Blockchain methods we propose are some of the first of their kind used in health research and are very suitable for the early detection of C/IC and other diseases where preemptive therapy is necessary. The following step will be to verify and use these models in the clinical realm and verify their effects on outcomes. Second we need to develop and evaluate our proposed methodology in building hybrid models, the use of blockchain technology to improve the quality of management, recurrence, anti-fungal therapy score 18 years, 0.12

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followed by algorithms for the early detection of diseases. These concepts still need to be fully evaluated on large population studies.

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370. Efficacy of Cocleated Amphotericin B (C-AMB) in Mouse Models of Oropharyngeal and Vulvovaginal Candidiasis

Jigar V. Desai, PhD1; Buyong Yu, BS2; Alexandra E. Freeman, MD3; Edmund tramont, MD, PhD1; Jerry Jabbour, PhD5; Raphael J. Mannino, PhD6; and Michal S. Lionakis, MD, ScD.1 Patient Clinical Complexity Level. Risk factors for candidemia captured were malignancy, diabetes, infection other than candidemia, liver cirrhosis, hemodialysis, congestive heart failure, coronary artery disease, chronic lung disease, intensive care, mechanical ventilation, and presence of central lines. For each control patient, we estimated attributable mortality until day 30 post candidemia diagnosis. We performed χ²-test for categorical and Student's t-test for continuous variables, and defined a two-tailed P-value of <0.05 statistically significant.

**Results.** Cases and controls were 68% males. Median age was 62 and 63 years, and 25th and 75th percentile 55 and 74 years in both groups. Candidemia occurred a median 18 days post admission. For cases and controls, median length of stay post diagnosis was 17 and 15.5 days (P = 0.13), for those controls who died 12 and 19 days (P = 0.21), and for survivors 24 and 13 days (P = 0.006). Day 30 mortality rates were 38% and 11% for cases and controls (P = 0.03); thus attributable mortality was 27% (95% CI, 16–28%).

**Conclusion.** Attributable mortality of nosocomial candidemia is still substantial, but was lower in our study when compared with literature from before introduction of echinocandins.

**Disclosures.** O. Cornely, Actelion, Amryl, Arsanis, Astella, AstraZeneca, Basilea, Bayer, Cidara, F2G, Gilead, GSK, Leeds University, Matinas, Medpace, Melinta, Merck/MSD, Miltenyi, Pfizer, Rempex, Roche, sanofi pasteur, Scynexis, Seres, Mckesson, Portland, Research Contract, Research grant and Research support, Allergan, Biotherapeutic, Actelion, Arsanis, Astellas, Baxalta, Basilea, Cidara, Da Volterra, F2G, Gilead, IQVIA, Janssen, Matinas, Menarini, Merck/MSD, Paratek, PSI, Scynexis, Seres, Summit, Tetraphase, Vical; Consultant, Consulting fee. Astellas, Basilea, Gilead, Merck/MSD, Pfizer: Speaker's Bureau, Speaker honorarium.

371. Risk Factors for Non-Albicans Candidal Vulvovaginitis

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

**Background.** Every year millions of women experience vulvo-vaginal candida. While the majority of the women with vulvo-vaginal candida are infected with albicans, the distribution of non-albicans candida (NAC) species varies depending on geography, race and ethnicity, and past medical history. While there are studies that explore the relationship between these factors and the incidence of NAC many of these studies are outdated. In this study, we explore the clinical risk factors for development of NAC compared with the more common albicans candida infections.

**Methods.** We performed a retrospective cohort study. 174 women with a positive candida culture were identified via a database maintained by the Cleveland Clinic Microbiology department. Exclusion criteria were women with negative cultures, those under the age of 18, or with an initial encounter prior to 2004.

The group of women who presented with NAC was 41.5 [31.0, 53.0] and was not statistically significant from women with no NAC, 43.0 [42.0, 45.0] (P = 0.19). Among all initial positive yeast cultures 34.5% were C. glabrata followed by C. parapsilosis at 3.4%. Women who had a positive NAC culture were more likely to be postmenopausal than those with no NAC, 73.8% vs. 26.2% of NAC (P ≤ 0.001). Additionally, women cultured with NAC were more likely to be on hormone replacement therapy, 77.8% NAC vs. 22.2% no NAC (P = 0.011). However, we found that recent antibiotic use, diabetes, and probiotic use had no impact.

**Conclusion.** This study shows that postmenopausal women and women who are hormone replacement therapy are more likely to be colonized by NAC indicating that these are risk factors.

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

372. Attributable Mortality of Candidemia After Introduction of Echinocandins

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

**Background.** Candidemia is among the most frequent nosocomial bloodstream infections and associated with considerable morbidity and mortality. Landmark case-control studies estimated an attributable mortality of 38% and 49%. After introduction of echinocandins, attributable mortality may have decreased.

**Methods.** In a case-control study we compared 100 hospitalized patients with candidemia who were enrolled at the University Hospital of Cologne. These cases had at least one blood culture positive for Candida spp., ≥48 hours post admission. We enrolled patients from January 2017 backwards until February 2014. Controls were paired with candidemia matched for age, sex, calendar year, duration of hospitalization, main admission diagnosis, and Patient Clinical Complexity Level. Risk factors for candidemia captured were malignancy, diabetes, infection other than candidemia, liver cirrhosis, hemodialysis, congestive heart failure, coronary artery disease, chronic lung disease, intensive care, mechanical ventilation, and presence of central lines. For each control patient, we estimated attributable mortality until day 30 post candidemia diagnosis. We performed χ²-test for categorical and Student's t-test for continuous variables, and defined a two-tailed P-value of <0.05 statistically significant.

**Results.** Cases and controls were 68% males. Median age was 62 and 63 years, and 25th and 75th percentile 55 and 74 years in both groups. Candidemia occurred a median 18 days post admission. For cases and controls, median length of stay post diagnosis was 17 and 15.5 days (P = 0.13), for those controls who died 12 and 19 days (P = 0.21), and for survivors 24 and 13 days (P = 0.006). Day 30 mortality rates were 38% and 11% for cases and controls (P = 0.03); thus attributable mortality was 27% (95% CI, 16–28%).

**Conclusion.** Attributable mortality of nosocomial candidemia is still substantial, but was lower in our study when compared with literature from before introduction of echinocandins.

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373. Impact of Concurrent Renal Replacement Therapy on Treatment Outcomes of Candidemia in Adults

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

**Background.** Treatment of candidemia is complex. Studies examining relationships between patient-related factors and treatment outcome are limited, often based on all-cause mortality. Our objectives were to compare concurrent prespecified factors between patients with and without treatment failure among adults with candidemia. Methods. This IRB-approved, single-center, case-cohort study included patients 18 years old admitted to Duke University Hospital between June 1, 2013 and June 1, 2017 with a blood culture positive for Candida spp. Treatment-, patient-, and disease-specific data were collected, and outcome (success/failure) determined 90 days after the index culture. An odds ratio (OR) and 95% confidence interval (95% CI) were determined for receipt of renal replacement therapy (RRT), fluconazole-containing regimen, ICU stay, and neutropenia between outcome groups.

**Results.** Among the 112 encounters (from 110 unique patients) included, treatment success was observed in 104/112 (92.9%). Demographics were comparable between treatment success and treatment failure groups. Among patients receiving concomitant RRT, 11/12 encounters (91.7%) were successfully treated. No significant differences were observed with regards to treatment failure with a fluconazole-containing regimen (OR, 1.5; 95% CI, 0.3–8.27), ICU stay (OR, 1.43; 95% CI, 0.32–6.29), and neutropenia (OR, 0.56; 0.1–2.6) between treatment failure groups.

**Conclusion.** Treatment success occurred in 91.7% of adult patients receiving concomitant RRT while undergoing treatment for candidemia. Treatment with a fluconazole-containing regimen, RRT, ICU stay, and neutropenia did not differ between the treatment outcome groups.

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

374. Candidemia Management and Associated Clinical Outcomes in Hospitalized Patients: An Opportunity for Antifungal Stewardship

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

**Background.** The incidence of candidemia has increased significantly over the past two decades and is a major cause of morbidity and mortality, prolonged hospital