in *Candida auris*. We analyzed all candidemia infections for signatures of transmission, including species, geographical, and temporal clusters. Here we present our preliminary data from December 2019 - May 2020.

Methods. This is a prospective and retrospective analytical observational study. Patients with candidemia were identified with the help of the Clinical Microbiology Lab at a University Medical Center. Data was collected on all identified patients by retrospective chart review. Data was described in terms of frequency distributions and percentages, and analyzed using SPSS. Isolates have been stored prospectively as glycerol stocks at -80 C for ongoing analyses.

Results. 37 patients were identified (Tables 1 and 2). Clusters of candidemia were seen in the months of January (*C. parapsilosis, 3 patients*), February (*C.glabrata*, 3 patients), March (*C.albicans*, 5 patients) and April (*C.glabrata*, 3 patients). 33/37 (89%) had a central line prior. Lines were removed in 73% (24/33) of these patients, the remaining patients were deceased before lines could be removed. Pancreatic pathology was seen in 15/37 (40.5%) patients (Table 3). 25/37 (67.5%) had an Ophthalmology consult.

Table 1. Patient demographics

Characteristic	Frequency	Percentage
Age distribution		
<1y	4	10.8
1-30 y	1	2.7
30-50 y	8	21.6
50-70 y	15	40.5
>70 y	9	24.3
Sex distribution		
Male	16	43.2
Female	20	54.0

Table 1. Patient demographics

Table 2. Epidemiology of candidemia

Species	Frequency	Percentage	Mortality (%) Overall 12/36 (33)	Amphotericin B Sensitivity	Fluconazole Sensitivity	Micafungin Sensitivity	Voriconazole Sensitivity
Candida albicans	12	32.4	5 (41.7)	No interpretation available	12 / 12 Sensitive	12 / 12 Sensitive	12 / 12 Sensitive
Candia glabrata	11	29.7	3 (27.2)	No interpretation available	**2 / 11 Intermediate, 2 / 11 Resistant**	**1 / 11 Resistant**	No interpretation available
Candida parapsilosis	7	18.9	2 (28.5)	No interpretation available	7 / 7 Sensitive	7 / 7 Sensitive	7 / 7 Sensitive
Candida tropicalis	2	5.4	0	No interpretation available	**1 / 2 Resistant**	Sensitive	Sensitive
Candida kefyr	1	2.7	1 (100%)	No interpretation available	No interpretation available	No interpretation available	No interpretation available
Candida krusei	1	2.7	1 (100%)	No interpretation available	**1 / 1 Resistant**	1 / 1 Sensitive	1 / 1 Sensitive
Candida dubliniensis	1	2.7	0	No interpretation available	No interpretation available	No interpretation available	No interpretation available
Candida orthopsilosis	1	2.7	0	No interpretation available	1 / 1 Sensitive	1 / 1 Sensitive	1 / 1 Sensitive
Candida utilis	1	2.7	0	No interpretation available	No interpretation available	No interpretation available	No interpretation available

Table 3. Pancreatic pathology in candidemia

Pancreatic pathology	Frequency	Percentage
Pancreatitis	5	13.5
Fatty atrophy	5	13.5
Pancreatic cancer	3	8.1
Pancreas divisum	3	8.1
Herniation of pancreas into mediastinum	2	5.4
Pancreatic cyst	1	2.7
Total	**15/37**	**40.5**

Table 3. Pancreatic pathology in candidemia

Conclusion. It is possible that the clusters identified shared equipment or other environmental factors that caused nosocomial transmission. We plan to use Whole Genome Sequencing to determine clonality among these isolates. The association of candidemia with pancreatic pathology was curious. It is to be evaluated whether this was simply a confounder or an actual risk factor that perhaps warrants consideration of prophylaxis. Rates of Ophthalmology consults to evaluate for endophthalmitis need to be improved in our setting. We hope that this study would prove valuable for infection control efforts and help us be better prepared to tackle emerging pathogens of this genus.

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1164. Epidemiology of Cryptococcal Infections in Non-HIV Patients: A 20-year Single Center Experience

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Session: P-52. Medical Mycology

Background. *Cryptococcus* has a worldwide distribution, *with C. neoformans* and *C. gattii* being two of the most common species causing disease. Despite advances in therapy, disseminated infection often results in significant morbidity and mortality.

Methods. We conducted a single center retrospective cohort study over a twenty-year period spanning from January 2000 through May 2020 to determine epidemiology and outcomes of non-HIV-associated cryptococcosis at Northwestern Memorial Hospital. Cases were identified by positive culture data or positive cryptococcal antigen in the serum or cerebrospinal fluid (CSF). Epidemiology of risk factors, morbidity, and mortality was evaluated.

Results. 81 cases were identified of which, 67 had *Cryptococcus spp* isolated from culture and the remaining patients diagnosed by cryptococcal antigen and/or histopathology. The cohort was primarily Caucasian (56.8%, n=46) and male gender (67.9%, n=55), with a median age of 59.5 (IQR: 52.75-66.25) years old. Common predisposing conditions were diabetes (37%, n=30), chronic kidney disease (34.6%, n=28), and liver disease (28.4%, n=23). Solid organ transplant recipients and use of immunosuppression accounted for, respectively, 32.1% (n=26) and 29.6% (n=24) of the cohort. Sites of infection include lung (65.4%. n=53), central nervous system (33.3%, n=27), blood (30.9%, n=25), peritoneum (6.2%, n=5), musculoskeletal (2.5%, n=2), and prostate (1.2%, n=1). Mean opening pressure on lumbar puncture was 25.3 mmHg (range: 9 -52 mmHg). In hospital mortality at time of diagnosis was 27.2% (n=22), and mortality at 12 months post diagnosis was 51.9% (n=42).

Conclusion. At our center, those with cryptococcosis commonly had risk factors such as immunosuppression either secondary to solid organ transplant or otherwise. Morbidity and mortality remain high.

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1165. Epidemiology, management and outcomes of fungal keratitis: A single center study from tertiary hospital in Thailand

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Background. Fungal keratitis is known as an important cause of sight threatening infection worldwide. Variation of clinical characteristics and treatment have been observed among different geographic regions. Currently, clinical data of fungal keratitis in South East Asia remain scarce.

Methods. A retrospective single study was conducted at King Chulalongkorn Memorial Hospital in Thailand. Medical records of patient with diagnosis of fungal keratitis between January 2016 and December 2018 were reviewed. Cases were identified using ICD-10 code. Data on demographics, clinical presentations, investigations and outcomes were collected. Mycological diagnosis was made in patients who had clinical presentation compatible with fungal keratitis and positive fungal detection in clinical specimen.

Results. During study period, fungal keratitis was diagnosed in 59 pts including 31 by mycological and 28 by clinical diagnosis. KOH preparation of corneal scraping was positive in 19 of 53 pts (35.8%). Culture from cornea, aqueous and vitreous yielded positive result in 18 of 53 (33.9%), 2 of 14 (14.3%), respectively. ITS sequence analysis was positive in 7 of 15 (46.7%) from cornea, 1 of 6 (16.7%) from aqueous and 2 of 2 (100%) from vitreous. Culture and molecular detection from clinical specimens provided additional mycological diagnosis in 8 and 5 cases with

negative KOH preparation. *Fusarium* was the most common pathogen (33%) followed by *Paecilomyces* (9.7%), *Aspergillus* (6.4%), *Candida* (6.4%). Ten patients (32.2%) had only positive KOH preparation. All patients received treatment with topical antifungal agent, while 38 pts (64%) required systemic, 24 pts (40.7%) received intrastromal, 22 pts (37.2%) received intracameral and 3 pts (5.1%) received intravitreal antifungal therapy. Operation was performed in 21 pts (35.6%) which 6 (28.5%) required evisceration. Twenty-three patients (39%) had visual improvement after complete treatment.

Conclusion. Fungal keratitis is not an uncommon disease. *Fusarium* was the most common etiologic agent similar to study from other region. Unfavorable outcomes were observed in majority of cases. Appropriate fungal culture and molecular detection from clinical specimens can be considered as they may increase diagnostic yield in some patients.

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1166. Evaluating the Impact of the 2016 Candidemia Guidelines on the Incidence of Ocular Complications of Candidemia

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Session: P-52. Medical Mycology

Background. The incidence of *Candida* bloodstream infections has risen over the last several decades. Complications of candidemia include endogenous fungal endophthalmitis which can result in devastating outcomes including vision loss. In 2015, the IDSA guidelines were updated to recommend echinocandins as initial therapy for candidemia. Given the poor ocular penetration of echinocandins there has been some concern this change may portend an increased incidence of ocular complications in candidemic patients. We sought to examine whether patients who received empiric echinocandin therapy developed higher rates of ophthalmic complications of candidemia.

Methods. We identified patients in our healthcare system who had blood cultures positive for *Candida* species and a completed ophthalmology consult between January 1, 2014 and April 30, 2019. Chi-squared analysis was used to compare antifungal prescribing patterns before and after release of the updated IDSA guidelines. We assessed whether the switch to empiric echinocandin therapy as directed by the guidelines was associated with higher rates of abnormal eye exams.

Results. 47 patients treated before the guideline change were compared to 57 patients treated after the guideline change. There was no significant difference in age, gender, or comorbid diabetes and hypertension between the groups. Before the guideline change, 24/47 (51%) of patients received eye-penetrating antifungals. This decreased to 21/57 after the updated guideline (37%, p=0.21). The percentage of patients with positive eye exams was nearly equal before and after the updated guidelines, 10/47 (21%) before vs 13/57 (22%) after (p=1). After the guideline change, 7/21 (33%) of the patients treated with penetrating antifungals had positive eye exams vs 6/36 (16%) who received echinocandins (p=0.19).

Conclusion. Echinocandins are known to have poor ocular penetration yet our data demonstrate no change in the incidence of ophthalmic complications of candidemia after the 2016 guideline endorsed echinocandins as empiric therapy. The prevalence of positive eye exams throughout our study period was 22%, suggesting ongoing utility for these exams. Ongoing investigation is necessary to confirm and further study these findings.

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1167. Got Micafungin? The Incidence of Fungemia in Patients with Septic Shock

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Session: P-52. Medical Mycology

Background. Timely administration of antibiotics in patients presenting with sepsis decreases mortality, however evidence evaluating empiric antifungal coverage has been inconclusive. Recent data have shown no mortality benefit of empiric antifungal therapy in patients with ICU-acquired sepsis. Despite the lack of data, the Surviving Sepsis Campaign recommends empiric coverage for all suspected pathogens, including fungi. The purpose of this study is to determine the frequency of concomitant septic shock and fungemia at UMass Memorial Medical Center, a large tertiary care center.

Methods. This was a retrospective cohort study that included adult patients with a discharge diagnosis of severe sepsis or septic shock and/or fungemia admitted to UMMMC between October 2017 and October 2019. Patients with positive fungal blood cultures were further reviewed to identify if septic shock was present within 24 hours of blood culture collection. Additionally, risk factors for fungemia and 30-day mortality were assessed. Exclusion criteria included pregnancy, cultures from outside hospitals, incarceration, and hospice care.

Results. In the analysis period, 4,253 patients had a discharge diagnosis of severe sepsis or septic shock. There were 68 cases of fungemia. In total, 54 patients with fungemia were included after applying exclusion criteria. Of the 54 patients with fungemia, 8 patients (15.1%) met criteria for septic shock at the time of positive blood culture, while 81% met SIRS criteria. Of the 4,253 total patients, 0.19% had coexisting fungemia and septic shock. At 30 days, four patients (7.4%) with both septic shock and fungemia had expired out of 12 total deaths. Three of the four deaths had multiple risk factors for fungemia including central line in place for greater than 48 hours, parenteral nutrition, and prolonged antibiotic therapy.

Conclusion. Septic shock is a rare presentation of fungemia. Most patients with septic shock and fungemia have known risk factors. Despite recommendations by the Surviving Sepsis Campaign to initiate therapy for all likely pathogens, including fungal species, the incidence of fungemia presenting as septic shock at our academic medical center was very low and does not appear to warrant empiric coverage.

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1168. Higher Glycosylated Hemoglobin (A1c) Levels are Associated with Increased Mortality from Cryptococcus Infection

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Session: P-52. Medical Mycology

Background. Diabetes mellitus is a well-established risk factor for the development of bacterial infections. However, the role of diabetes mellitus as a risk factor in the occurrence of Cryptococcosis is unknown. The aim of the study was to determine whether diabetes and A1c levels were independent risk factors for infection and mortality in *Cryptococcus* infection.

Methods. A retrospective hospital-based case-control study matched by age and gender (96 cases and 125 controls) was performed in patients tested for *Cryptococcus* infection at University of Colorado Hospital from 2001-2019 (n=221). Data was extracted through RedCap. A multivariable logistic regression model was used to identify predictors of infection and mortality.

Results. Diabetes mellitus was present in 24 cases (25.0%) and 24 controls (19.2%). In cases, the mean age was 54 years, 79% were men, and diabetes was the only known risk factor in 6 cases (6.3%) and accompanied additional risk factor in 18 cases (18.8%). Other common risk factors included: HIV (39.9%), steroid use (24.7%), malignancy (23.2%), solid organ transplant recipients (18.1%), and cirrhosis (5.2%). Cryptococcal meningitis (49.0%) followed by pulmonary infection (36.5%) were the most common sites of infection. The mean A1c value for cases vs. controls was 6.5 ± 1.5 vs. 6.2 ± 1.8 mmol/L, p=0.43. Overall mortality was 27.3% vs. 26.9% among cases and controls, respectively. Among cases, the risk of death was higher for patients with diabetes, although not significantly (39.1% vs 23.1%, p= 0.137). Adjusted for gender, age and case/control; for every 1-point increase in A1c levels, the odds of mortality increased by 40% (OR = 1.4, CI: 1.0-1.9, p= 0.045).

Conclusion. Diabetes mellitus alone is an uncommon risk factor for acquiring *Cryptococcus* infection. However, uncontrolled diabetes in Cryptococcosis may worsen outcomes from infection, including increased mortality. Glucose control interventions may improve clinical outcomes in patients with cryptococcal infection.

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1169. In Vitro Activity of Posaconazole versus Voriconazole for the Treatment of Invasive Aspergillosis in Adults Enrolled in a Clinical Trial

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Session: P-52. Medical Mycology

Background. Invasive aspergillosis (IA) is a life-threatening disease with limited treatment options and is associated with delays in effective treatment and significant early mortality. Posaconazole (POS) is a broad-spectrum triazole antifungal, that exhibits potent activity against yeasts and molds. We evaluated the antifungal susceptibility profiles of isolates collected during a randomized, prospective, phase 3, double-blind, double-dummy study comparing posaconazole with voriconazole (1:1 randomization) given for ≤12 weeks in the primary treatment of IA (ClinicalTrials.gov, NCT01782131; EudraCT, 2011-003938-14) using CLSI and EUCAST reference testing methodologies.

Methods. More than 90 study sites located in 23 countries enrolled subjects in the clinical trial. A total of 127 isolates were recovered from documented infections during 2013 through 2019. Fungal isolates were identified using molecular methods and antifungal susceptibility testing was performed by reference broth microdilution methods. The following antifungal agents tested were: posaconazole, itraconazole, voriconazole, caspofungin, and amphotericin B

Results. Of the 127 samples tested, 119 were identified as *Aspergillus* species. *Aspergillus fumigatus* (N=76) was the most prevalent species, followed by *A. flavus species* complex (N=19), *A.* section *Nigri* (N=10), *A.* section *Terrei* (N=7). Overall, posaconazole (MIC_{50}/MIC_{90}, 0.5/1 mg/L) displayed similar activity to voriconazole (MIC_{50}/MIC_{90}, 0.5/1 mg/L) and itraconazole (MIC_{50}/MIC_{90}, 1/2 mg/L) against 119 Aspergillus species Isolates, by both, CLSI and EUCAST method. Posaconazole (MIC_{50}/MIC_{90}, 0.5/0.5 mg/L) and voriconazole (MIC_{50}/MIC_{90}, 0.25/0.5 mg/L) inhibited all 76 *A. fumigatus* isolates at MIC of 1 mg/L. Among 19 *A. flavus species* complex isolates recovered from this study, posaconazole (MIC_{50}/MIC_{90}, 0.5/1 mg/L), voriconazole (MIC_{50}/MIC_{90}, 1/1 mg/L) and itraconazole (MIC_{50}/MIC_{90}, 0.5/1 mg/L) displayed equivalent activity.

Conclusion. Posaconazole displayed good activity against all Aspergillus species isolates included in this study. In addition, posaconazole in vitro activity against Aspergillus species was similar to that observed by voriconazole and itraconazole.

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