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

**Thursday, October 4, 2018: 12:30 PM**

**Blood stream infection and CNS involvement are associated with worse outcome.**

**Background.** Despite available prophylaxis, *Pneumocystis jirovecii* pneumonia (PJP) still occurs in immunocompromised hosts. We set out to determine the overall burden of disease among patients with malignancy and bone marrow transplant recipients. The majority were male (58%) with a median age of 66 years (IQR: 47, 67). The most common underlying malignancy was acute myeloid leukemia (24%); 24/37 (65%) were bone marrow transplant recipients. The 5-year incidence between 2012 and 2016 was 2.28 per 10,000 inpatient days (95% CI, 1.50–3.32). There was no evidence of clustering of PJP diagnoses. Overall, 26/37 (70%) of PJP patients were not on prophylaxis at the time of diagnosis, 12 of whom met NCCN criteria for use. Twenty-three were deceased by the end of the study with 11/23 (48%) deaths occurring within 30 days of diagnosis. The main reason for prophylaxis was not administered was neutropenia (19%). A documented sulfa allergy was noted in seven PJP cases (19%); 2/7 (29%) were not administered alternative prophylaxis despite recommendations for use.

**Conclusion.** PJP incidence in this large cohort of cancer patients was low, but one-third of patients who developed PJP were not on recommended prophylaxis in accordance with NCCN guidelines. Infection Prevention and Antimicrobial Stewardship teams should enhance efforts to address missed opportunities for PJP prophylaxis in high-risk patients.

**Disclosures.** S. Pergam, Merck: Consultant, Consulting fee. Chimerix: Consultant, Consulting fee.

**403. Prognostic Factors in 260 Adults With Invasive Scedosporiosis From Literature and FungiScope**

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**Background.** Invasive scedosporiosis (IS) and lomentosporiosis (IL) are an increasing concern due to intrinsic resistance of such pathogens to antifungal therapy. Guidelines recommend voriconazole, amphotericin B and surgery to treat scedosporiosis, irrespective of the causative species. *Scedosporium* spp. are often resistant to amphotericin B but susceptible to posaconazole and voriconazole, whereas *Lomentospora prolificans* (LoPro) is usually pan-resistant. Mortality rates rise to 90%, despite comprehensive treatment. Here, we describe the epidemiology of IS.

**Methods.** Analysis of patients with IS was conducted to evaluate clinical characteristics and outcomes. Cases diagnosed from January 2000 until August 2017 were selected from the literature and the FungiScope™ registry. The new antifungal drug Olorofim was highly active against all isolates tested. Posaconazole and voriconazole were most common in iL cases. Posaconazole and voriconazole showed good in vitro activity against most *Scedosporium* spp. isolates, but not LoPro. The aim of the present study was to describe reasons for failure to use prophylaxis among these patients. We sought to describe reasons for failure to use prophylaxis among these patients.

**Results.** In this retrospective cohort study, we identified PJP cases among patients admitted between January 2007 and December 2016 at our center. PJP was defined as any positive test (immunofluorescence or PCR) from sputum and/or bronchoalveolar lavage. Patient demographics, underlying malignancy, anti-pneumocystis antibiotics and mortality were assessed through electronic medical records. Current National Comprehensive Cancer Network (NCCCN) guidelines were used to determine who should have received prophylaxis. Cases not on prophylaxis at the time of diagnosis were reviewed to determine reasons why prophylaxis was not administered. Incidence of PJP for the last 5 years of the study was estimated based on a Poisson distribution.

**Conclusions.** A total of 37 patients had confirmed PJP over the 10-year study period. The majority were male (58%) with a median age of 66 years (IQR: 47, 67). The most common underlying malignancy was acute myeloid leukemia (24%); 24/37 (65%) were bone marrow transplant recipients. The 5-year incidence between 2012 and 2016 was 2.28 per 10,000 inpatient days (95% CI, 1.50–3.32). There was no evidence of clustering of PJP diagnoses. Overall, 26/37 (70%) of PJP patients were not on prophylaxis at the time of diagnosis, 12 of whom met NCCN criteria for use. Twenty-three were deceased by the end of the study with 11/23 (48%) deaths occurring within 30 days of diagnosis. The main reason for prophylaxis was not administered was neutropenia (19%). A documented sulfa allergy was noted in seven PJP cases (19%); 2/7 (29%) were not administered alternative prophylaxis despite recommendations for use.

**Conclusion.** PJP incidence in this large cohort of cancer patients was low, but one-third of patients who developed PJP were not on recommended prophylaxis in accordance with NCCN guidelines. Infection Prevention and Antimicrobial Stewardship teams should enhance efforts to address missed opportunities for PJP prophylaxis in high-risk patients.

**Disclosures.** S. Pergam, Merck: Consultant, Consulting fee. Chimerix: Consultant, Consulting fee.

**404. Tinea Capitis: Are Epidemiologic Shifts Associated With Distinct Clinical Presentations?**

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

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**Background.** Tinea capitis is an infection of the hair on the scalp caused by dermatophytic fungi. Geographic distribution of individual organisms has changed significantly over time. In early 20th century Europe, *M. audouini* and *T. schoenleini* dominated, both of which are anthropophilic species, being passed from human to human. This was followed by a rise of zoophilic species, those passed from animals to humans, such as *M. canis* and *T. mentagrophytes*. The epidemiological and biological underpinnings of these continuous changes over time are complex and the importance of environmental factors, genetic predisposition, and movement of populations has been broadly debated. This study aims to characterise the organisms causing tinea capitis at a pediatric tertiary care center in Minneapolis, Minnesota.

**Methods.** We retrospectively reviewed the electronic medical record from 2010–2015 and identified 42 children with culture positive tinea capitis.

**Results.** In the 18 (42.9%) patients who were infected with either *T. violaceum* or *T. tonsurans*, all were of African ethnicity. In contrast, *T. tonsurans* was seen only in Africa. Both *T. violaceum* and *T. tonsurans* cause tinea capitis with minimal inflammation, mimicking seborrheic dermatitis leading to misdiagnosis and incorrect treatment. Studying epidemiologic changes in tinea capitis can help us understand shifts in the clinical presentation of this disease as our population make up evolves, allowing us to provide crucial quality care to all.

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and sepsis in a tertiary care 30-bedded chemotherapy oncology unit is the first human outbreak to the best of our knowledge.

**Methods.** *P. wickerhamii* algaemia was confirmed on consecutive isolation. Person to person transmission was hypothesized considering all patients in the unit at risk. Clinico-demographic, diagnostic and treatment profile were correlated. Both manual and automated systems were used for blood culture, isolation, identification, and susceptibility of *P. wickerhamii*. Liposomal amphotericin B was given. Outbreak surveillance of faeces, fingertips and environmental reservoirs, retrospective surveillance during past 15 years and prospective surveillance was continued for 2 years. The outbreak lasted over 12 months. Only specific clinical features were noted. The hypothesis could not be substantiated. *P. wickerhamii* was isolated as yeast-like colonies revealing Gram positive yeast-like cells without bud-

and pseudohyphae which were confirmed by automated system. Post amphotericin B blood cultures were not contributory.

**Conclusion.** *P. wickerhamii* has no documented reservoirs or transmis-

sion. Endogenous colonization in the gut followed by translocation during chemother-

apy-induced immunosuppression is likely to cause algaemia and sepsis. Outbreaks are differed from the previous outbreaks as incubation period of transmissible mucormycosis is 10 days, emphasizing the need to strengthen hospital and laboratory-based surveillance systems to ensure adequate preparedness, rapid detection, and response to outbreaks.

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

406. Achievement of Clinical Isavuconazole (ISA) Serum and Plasma Drug Concentrations in Two Patients With Isavuconazolium Capsules Administered via Nasogastric Feeding Tube (NGT)

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**Background.** Isavuconazole is a broad-spectrum antifungal available in both intra-

venous (IV) and oral capsule formulations for the treatment of invasive aspergillosis and mucormycosis. Oral administration can be challenging as FDA prescribing information states capsules should not be chewed, crushed, dissolved, or opened. We describe the first two cases, to our knowledge, of patients who received isavuconazolium capsules sprinkled via NGT with concomitant therapeutic drug monitoring (TDM).

**Methods.** All serum and plasma assays resulted from January 1, 2016 to February 1, 2018 at a tertiary academic medical center were assessed. Isavuconazole assays were performed by Viracor Eurofins, Inc. using liquid chromatography-tandem mass spectrometry. Retrospective chart review was performed for all patients. Assay results from patients receiving whole capsules by mouth (PO) were compared with NGT.

**Results.** Nineteen unique patients had 33 ISA assays during the study period. Two patients received capsules via NGT. The first patient was a 59-year-old female treated empirically for fungal rhinosinusitis who received 5 days of IV therapy prior to switching to NGT. Trough ISA levels on days 11 and 23 were 1.9 and 1.5 mg/L, respectively. The second patient was a 66-year-old male treated for presumed invasive pulmonary aspergillosis who received 7 days of NGT therapy; trough level on day 8 was 2.9 µg/mL. Both patients received continuous tube feedings and were liver transplant recipients. In comparison, trough ISA levels in the PO group (n = 17) ranged from 1.1 to 8.0 µg/L (3.79 ± 1.68). All patients received FDA-approved loading and maintenance dosing.

**Conclusion.** Patients receiving isavuconazolium via NGT (opened sprinkled capsules) achieved clinically detectable serum ISA levels in a therapeutic range compared to patients receiving PO.

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407. Changes in the Utilization Patterns of Antifungal Agents, Medical cost, and Clinical Outcomes of Candidemia by Healthcare Benefit Expansion to Include Newer Antifungal Agents

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**Background.** Candidemia is a major life-threatening fungal infection in hospi-

tialized patients worldwide. In 2014, South Korea’s national health insurance expanded its coverage for newer antifungal agents such as echinocandins. This study investigated the effects of change in insurance coverage on the prescription patterns of antifungals, medical costs, and treatment outcomes of candidemia.

**Methods.** A retrospective cohort study was conducted for all hospitalized patients with candidemia at three tertiary care hospitals in South Korea from January 2012 to December 2015. The utilization of newer antifungal agents, medical cost, and treatment out-

comes before and after the healthcare benefit expansion were compared and the factors associated with 28-day mortality during the study period were analyzed.

**Results.** A total of 769 candidemia patients were identified during the study periods 2012 to 2015, there were 196, 199, 201, and 173 patients, respectively. The incidence of candidemia did not change during the study period (P = 0.253). The proportion of echinocandins as the initial antifungal agent and direct medical costs for candidemia significantly increased since the change in insurance coverage (P < 0.001). There was no significant difference in 28-day mortality of candidemia before and after the healthcare benefit expansion (P = 0.067). On multivariable analysis, independent factors associated with the 28-day mortality were Charlson comorbidity score (odds ratio [95% confidence interval]: 1.171 [1.080–1.269]), SOFA score (1.258 [1.185–1.331]) and initial treatment with amphotericin B (vs. fluconazole [0.624 (0.428–0.912)] and caspofungin [0.517 [0.269–0.993]])

**Conclusion.** Although the utilization of newer antifungal agents and medical cost for candidemia has significantly increased since the healthcare benefit expansion, to date, the policy change does not seem to change the mor-

tality rate of candidemia in South Korea.

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

408. Invasive Fungal Petrositis and Carotiditis (IFPAC) Syndrome in Immunocompromised Hosts: An Unrecognized, Often Catastrophic Invasive Fungal Disease (IFD)

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

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**Background.** Infections involving the petro-clival junction of the temporal bone are rare and primarily caused by *Pseudomonas aeruginosa* (skull base osteomyelitis). IFD, including invasive aspergillosis (IA), are not often considered in the diagnosis of these cases.

**Methods.** We conducted a retrospective study of patients diagnosed with fungal skull base petrositis at our institution from 2003 to 2018. We collected data including demographics, clinical presentation, imaging, diagnostic evaluation, treatment, microbiology, and outcomes.

**Results.** We identified four cases of IFPAC. Median age at presentation was 73 years (range, 66–79), 3 were male. IFD risk factors included diabetes (n = 3), glucocorticoid use (n = 3), and lymphoid malignancy (n = 2). Two patients were on additional T-cell immunosuppressants. Patients presented with otalgia (n = 2) or headaches (n = 2). Two patients developed cranial nerve deficits (III, V, VI), two had hearing loss and trigeminal neuralgia. All cases were caused by Aspergillus spp. (3 proven, one probable IA). Two cases were otogenic, two were sinusial in origin. Proven cases were confirmed by biopsy of mastoid cortex or sinus tissue. Median time from symptom onset to diagnosis was 17 weeks (range, 6–36). All patients were treated with ant-Fungal therapy with initial improvement in symptoms, imaging, or decrease in galactomanan levels. All patients eventually presented with occlusion of the internal carotid artery (ICA) and multiple cerebro-vascular infarcts. Two patients were diagnosed with mycotic aneurysms involving (a) ICA with rupturing necrotic endovascular vegetation and vessel saccula; (b) basilar summit with subarachnoid hemorrhage. Three patients died following these vascular events, while one patient underwent left ICA bypass with improvement in symptoms.

**Conclusion.** IFPAC is a rare, but distinct manifestation of IFD and was caused by IA in this series. All patients experienced carotid vascular events and two patients had associated mycotic aneurysms despite symptomatic and radiologic improvement on antifungal therapy, raising the question if more aggressive surgical or endovascular interventions need to be considered in this syndrome.

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409. Changing Epidemiology of Fungal Bloodstream Infections in a Tertiary Care Center in India

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