384. Findings From a Candida auris Admission Screening Pilot in New York State
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Background. Candida auris is an emerging multidrug-resistant yeast which can spread within healthcare facilities and is associated with significant morbidity. Over 160 clinical cases have been reported in NYS. This pilot aims to assess the feasibility of C. auris admission screening and to better understand its role in controlling spread of C. auris in an area where it has emerged.

Methods. One hospital and two nursing homes (NHS) with known prior cases participated (one NH and hospital are closely associated and are reported together). Patients were screened on admission to any of three hospital intensive care units (medical, cardiac, pulmonary) or to a ventilator unit in the NHs from November 2017 to April 2018. Screening consisted of bilateral nares and axilla/groin swabs sent to the NYS Department of Health Wadsworth Center (WIC) for a WIC-developed C. auris real-time polymerase chain reaction (r-PCR) test. Specimens with detection of C. auris on r-PCR underwent fungal culture. Facilities were alerted of positive results and infection control precautions were promptly initiated.

Results. To date, 575 patients (1,371 samples) were screened. Of patients not previously known to be colonized, 39 had C. auris detected on r-PCR; 34 confirmed by C. auris culture at either site and one culture pending. Of these, 30 (88%) were detected and confirmed from the axilla/groin specimen (Figure 1). Mean age was 76 years and 59% were females. Patients had significant healthcare facility exposure (Figure 2). Eleven (32%) were from NH-A and 23 (68%) from the hospital/NH-B combined. Rates of positivity were 16.2% (11/68) for NH-A and 4.6% (23/498) for the hospital/NH-B.

Conclusion. C. auris r-PCR is a useful tool within an admission screening program; however, more accessible and affordable rapid laboratory diagnostics are urgently needed. The axilla/groin site detected the majority of colonized individuals. Admission screening was feasible and increased facility knowledge of colonization status, which led to earlier implementation of infection control precautions potentially limiting spread. However, further study is needed to assess transmission dynamics and potential impact of admission screening on control of C. auris within an outbreak or endemic setting.

Figure 1.

Figure 2.

Disclosures. All authors: No reported disclosures.

385. The Value Added From Candida auris Point Prevalence and Environmental Studies in New York State
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Background. C. auris is an emerging multidrug-resistant yeast which can spread within healthcare facilities and is associated with significant morbidity. Over 160 clinical cases have been reported in NYS. This pilot aims to assess the feasibility of C. auris admission screening and to better understand its role in controlling spread of C. auris in an area where it has emerged.

Methods. A PPS was defined as culturing ≥2 individuals at a healthcare facility that diagnosed, cared for, or was near a facility with a C. auris case. ES involved environmental swabbing in facilities where cases resided or were admitted. Cultures and polymerase chain reaction (PCR) were performed at the NYS Wadsworth Center.

Results. As of March 25 2018, 151 clinical cases of C. auris were diagnosed in NYS. We conducted point prevalence surveys (PPS) and environmental surveys (ES) to detect surveillance cases and assess the burden of environmental contamination in NYS healthcare facilities from September 12, 2016.

Methods. A PPS was defined as culturing ≥2 individuals at a healthcare facility that diagnosed, cared for, or was near a facility with a C. auris case. ES involved environmental swabbing in facilities where cases resided or were admitted. Cultures and polymerase chain reaction (PCR) were performed at the NYS Wadsworth Center.

Results. As of March 25, 2018, 81 PPS or ES had been conducted at 55 facilities. From these PPS, a total of 144 (61.6%) individuals were positive for C. auris by culture; 125 were PCR positive. The rates of culture positive C. auris identified patients varied by facility type: hospitals (38/767, 5.0%), long-term care facilities (LTFCF) (88/1,404, 6.3%), long-term acute care (1/35, 2.9%), and co-located hospital and LTFCF (17/138, 12.3%). The majority of the LTFCF C. auris culture-positive cases (80/82) were identified in facilities that cared for ventilated patients. Rates in LTFCF caring for ventilated patients were nearly 10 times as high as other LTFCF [86/1,121 (7.7%) vs. 2/284 (0.7%)]. ES identified 86 (3.0%) samples positive by culture and 257 (8.9%) by PCR. Thirty-seven (67%) of the 55 facilities had at least one positive environmental sample by PCR or culture; many of these positive samples were from surfaces or equipment deemed to be “clean.” Over 1,900 person-hours were needed to conduct onsite PPS and ES that collected >4,200 human and >2,800 environmental samples and identified opportunities for improving basic infection prevention and environmental cleaning. Ten facilities, including the co-located hospital and LTFCF, had multiple positive PPS or ES.

Conclusion. PPS conducted over 17 months detected many colonized individuals and C. auris in facility environments, likely indicating a silent reservoir for this organism beyond clinical cases, especially in LTFCFs. Serial PPS and ES can help improve C. auris detection and inform subsequent infection prevention and control interventions. However, these efforts are resource intensive and can divert resources from other activities.

Disclosures. All authors: No reported disclosures.
386. A Reexamination of Disseminated Coccidioidomycosis: The Natural History in the Pre-Antifungal Era

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Background. While it has been previously well described that central nervous system (CNS) coccidioidomycosis (CM) is nearly always fatal without treatment, the natural history of non-CNS disseminated coccidioidomycosis (DCM) infections is not well characterized. The historical VA-Armed forces CM patient group provides a unique cohort of patients not treated with standard antifungals to characterize the natural history of non-CNS DCM.

Methods. We conducted a retrospective study of 595 VA-Armed forces CM patients diagnosed between 1955 and 1958 and followed to 1966. Cohorts were identified as non-disseminated disease (487 patients), non-CNS DCM (72 patients), and CNS DCM (36). A combination of statistical analyses were used to compare demographic information, laboratory data including serologies and complete blood count data, symptom severity, late onset of disease, and mortality.

Results. There were significant differences in the ethnicity between the cohorts with trends toward a non-CNS DCM/Black and Filipino patients in the disseminated cohort (P < 0.001). There was a trend showing increased frequency of leukocytosis regardless of eosinophilia in the disseminated cohorts (P = 0.009). Patients with disseminated disease presented with more severe symptoms (P = 0.006). Primary fate of infection dissemination was determined for 226 of 233 cases of residual pathology were observed in DCM, 13.89% in non-CNS DCM, and 19.44% in CNS DCM (P < 0.001). In addition, there were decreased rates of residual cavities in DCM: 33.26% in non-CNS DCM, 8.33% in non-CNS DCM, and 8.33% in CNS DCM (P < 0.001). Forty-five percent and 53% of patients in the non-CNS DCM and CNS DCM cohorts, respectively, developed dissemination with initial infection. Mortality at last known follow-up due to CM was significantly different across the cohorts: 1.03% in non-DCM, 15.28% in non-CNS DCM, and 77.78% in CNS DCM (P < 0.001).

Conclusion. This unique retrospective cohort study helps further characterize the natural history of non-CNS DCM in comparison to CNS DCM in a population that was not treated with conventional antifungal therapy. While not as fatal as CNS DCM, non-CNS DCM shares many characteristics and has a high associated morbidity.

Disclosures. All authors: No reported disclosures.

387. Coccidioidomycosis in Children Younger Than 2 Years of Age: A Retrospective Review

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Background. Coccidioidomycosis, a disease endemic to the southwestern United States, is associated with significant morbidity, especially in patients in the extremes of age and patients with immunodeficiency or other comorbidities. This review aims to study the disease burden in infants and young children.

Methods. A review of coccidioidomycosis cases in patients younger than 2 years of age seen at Valley Children’s Hospital over a 10-year period, between June 1, 2007 and December 31, 2017.

Results. Forty cases were identified. Median age was 10.9 months (IQR, 5.3–15.8), majority were males (60%), Hispanic (80%), and without comorbid conditions (93%). Fever and cough were the most common symptoms occurring in 83% and 75% of the cases, respectively; Erythema nodosum was seen in only 10% of the patients. Forty percent of the patients had disseminated disease, while 58% had pulmonary disease alone. The most commonly involved extra-pulmonary sites were: bone (12%), central nervous system (10%), larynx (7%), and skin (7%). Majority of patients required hospitalization (75%) and received antifungal therapy (95%), with 55% of them requiring two or more drugs. Patients with disseminated disease presented at a younger age than those with pulmonary disease alone (median 6.7 vs. 12.5 months, P = 0.07); had higher coccidoidal complement fixation titers at the time of diagnosis (median 1:32 vs. 1:16, P = 0.05); required longer duration of hospitalization (median 79 vs. 2 days, P = 0.002); and were more frequently treated with combination antifungal therapy (87% vs. 36%, P = 0.001). In regards to outcome, disease resolution was achieved in 75% of the cases whereas 25% had active but stable disease on maintenance therapy. A relapse occurred in 5% of the cases. No deaths occurred in this cohort.

Conclusion. Coccidioidomycosis in children younger than 2 years of age is associated with significant morbidity and healthcare burden. Disseminated disease is frequently encountered in this age group and should be considered when formulating the plan for treatment and diagnostic investigations.

Disclosures. All authors: No reported disclosures.

388. New Observations in Coccidioidomycosis Serology

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Background. Coccidioidomycosis is associated with a broad spectrum of illness severity, ranging from asymptomatic or self-limited pulmonary infection to life-threatening disseminated disease. Current understanding of serologic kinetics and serologic features are largely based on serologic studies from the 1950s before antifungals were widely available. The effects of antifungal therapy on serologic characteristics has not previously been evaluated.

Methods. We retrospectively analyzed chart history and complement fixation titer trends of 434 patients classified by infectious disease physicians as having either uncomplicated pulmonary coccidioidomycosis (UPC) (n = 248), chronic pulmonary coccidioidomycosis (CPC) (n = 64), disseminated coccidioidomycosis not including meningitis (DC) (n = 66), or coccidoidal meningitis (CM) (n = 36). All patients received azole antifungal therapy. Serologic kinetics and features were analyzed and compared between groups.

Results. Roughly 94% of UPC, 61% of CPC, 29% of DC, and 56% of CM patients developed maximum complement fixation titers ≥1:32. Surprisingly, 25.4% of UPC, 6.3% of CPC, 23% of DC, and 8.3% of CM patients did not develop a detectable complement fixation titers during the study period (at least 3 years after diagnosis for each patient). The median maximum titer was 1:4 (range <1:2–1:512) for UPC, 1:24 (range <1:2–12:048) for CPC, 1:128 (range <1:2–14:096) for DC, and 1:32 (range <1:2–1:4096) for CM. Few significant changes were observed in DCM. The highest maximum titer (overall mean 31 days, 95% CI 13–50) and serologic resolution rates (average 3–4 months/dilution reduction). However, 9% of UPC, 36% of CPC, 50% of DC, 52% of CM patients exhibited serologic reactions (defined as ≥2 dilution titer increase >90 days from initial positive serology). Meanwhile, 15% of UPC, 25% of CPC, 31% of DC, and 25% of CM patients exhibited a serofast phenotype despite antifungal therapy.

Conclusion. Our findings provide an update to serologic studies performed prior to long-term triazole therapy. An understanding of the serologic features and kinetics for patients with varying forms of coccidioidomycosis receiving antifungal therapy is key to clinical evaluation and therapeutic decision making.

Disclosures. All authors: No reported disclosures.

389. Pediatric Musculoskeletal Coccidioidomycosis in Central California: Single-Center Experience

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Background. Coccidioidomycosis is associated with a broad spectrum of illness severity, ranging from asymptomatic or self-limited pulmonary infection to life-threatening disseminated disease. Current understanding of serologic kinetics and serologic features are largely based on serologic studies from the 1950s before antifungals were widely available. The effects of antifungal therapy on serologic characteristics has not previously been evaluated.

Methods. We retrospectively analyzed chart history and complement fixation titer trends of 434 patients classified by infectious disease physicians as having either uncomplicated pulmonary coccidioidomycosis (UPC) (n = 248), chronic pulmonary coccidioidomycosis (CPC) (n = 64), disseminated coccidioidomycosis not including meningitis (DC) (n = 66), or coccidoidal meningitis (CM) (n = 36). All patients received azole antifungal therapy. Serologic kinetics and features were analyzed and compared between groups.

Results. Roughly 94% of UPC, 61% of CPC, 29% of DC, and 56% of CM patients developed maximum complement fixation titers ≥1:32. Surprisingly, 25.4% of UPC, 6.3% of CPC, 23% of DC, and 8.3% of CM patients did not develop a detectable complement fixation titers during the study period (at least 3 years after diagnosis for each patient). The median maximum titer was 1:4 (range <1:2–1:512) for UPC, 1:24 (range <1:2–12:048) for CPC, 1:128 (range <1:2–14:096) for DC, and 1:32 (range <1:2–1:4096) for CM. Few significant changes were observed in DCM. The highest maximum titer (overall mean 31 days, 95% CI 13–50) and serologic resolution rates (average 3–4 months/dilution reduction). However, 9% of UPC, 36% of CPC, 50% of DC, 52% of CM patients exhibited serologic reactions (defined as ≥2 dilution titer increase >90 days from initial positive serology). Meanwhile, 15% of UPC, 25% of CPC, 31% of DC, and 25% of CM patients exhibited a serofast phenotype despite antifungal therapy.

Conclusion. Our findings provide an update to serologic studies performed prior to long-term triazole therapy. An understanding of the serologic features and kinetics for patients with varying forms of coccidioidomycosis receiving antifungal therapy is key to clinical evaluation and therapeutic decision making.

Disclosures. All authors: No reported disclosures.