

**Conclusion:** Doxycycline serves as a treatment of choice for BHNR; however, our patient reported a severe, likely IgE-mediated reaction to tetracycline 28 years prior. She subsequently tolerated the first doxycycline graded challenge at our institution. Unlike B-lactam allergies, there is a paucity of literature exploring the cross-reaction potentials of various tetracyclines. Limited evidence has suggested that cross-reactions are not absolute. Tetracycline allergies present an opportunity for antimicrobial stewardship.

**Disclosures:** All Authors: No reported disclosures

### 354. The Epidemiology and Clinical Features of *Acanthamoeba* Disease in the United States, 1956–2018

Kevin O’Laughlin, MD<sup>1</sup>; Jennifer R. Cope, MD, MPH<sup>1</sup>; Zachary A. Marsh, MPH<sup>1</sup>; <sup>1</sup>Centers for Disease Control and Prevention, Atlanta, Georgia

**Session:** P-11. CNS Infection

**Background:** *Acanthamoeba* is a free-living amoeba found worldwide in soil and water that can cause severe illness. Transmission is thought to be through the skin, eyes, or lungs; *Acanthamoeba* can cause disseminated infection (*Acanthamoeba* disease) in addition to the more widely recognized *Acanthamoeba* keratitis. Infections however are rare, and only case reports or small case series have been published. We review *Acanthamoeba* disease cases from the Centers for Disease Control and Prevention (CDC) free-living amoeba registry to characterize the disease in the United States.

**Methods:** CDC maintains a free-living amoeba (FLA) registry of laboratory-confirmed *Acanthamoeba* cases (excluding keratitis) sourced from published case reports, CDC case report forms, and CDC laboratory results. SAS® version 9.4 software was used to calculate descriptive statistics and frequencies.

**Results:** We identified 163 cases of *Acanthamoeba* disease between 1956 and 2018. Of cases with documented outcome, 85% were fatal (105/124). Most (88%) cases were in patients who were immunocompromised (136/155): 66 people living with HIV (of whom 49 were classified as having AIDS); 33 recipients of organ transplantation; 30 people diagnosed with malignancy. The most common manifestation of disease was encephalitis (49%). Other clinical presentations included cutaneous lesions (20%) and rhinosinusitis (6%); 40 cases involved multiple organ systems. Median patient age was 42 years (range 0–83 years). Males accounted for 71% (114/160) of cases. California (29) and Texas (14) had the most case reports; 30 other states reported cases. The source of exposure was unknown in most cases (75%); soil and water were documented in 14 and 17 cases, respectively.

**Conclusion:** *Acanthamoeba* disease in the United States is primarily characterized by encephalitis and cutaneous lesions that affect predominately immunocompromised individuals. *Acanthamoeba* as a cause of encephalitis in immunocompromised patients should be considered by clinicians, which may lead to earlier diagnosis and treatment.

**Disclosures:** All Authors: No reported disclosures

### 355. Variability in the Current Evaluation and Management of Pediatric Encephalitis: Survey Results from an Emerging Infections Network Survey

Walter Dehority, MD, MSc<sup>1</sup>; Andrew B. Janowski, MD<sup>2</sup>; Kevin Messacar, MD<sup>3</sup>; Kevin Messacar, MD<sup>3</sup>; Philip M. Polgreen, MD<sup>4</sup>; Susan E. Beekmann, RN, MPH<sup>4</sup>; <sup>1</sup>The University of New Mexico School of Medicine, Albuquerque, New Mexico; <sup>2</sup>Washington University School of Medicine, St. Louis, Missouri; <sup>3</sup>University of Colorado/ Children’s Hospital Colorado, Denver, Colorado; <sup>4</sup>University of Iowa Carver College of Medicine, Iowa City, IA

**Session:** P-11. CNS Infection

**Background:** Childhood encephalitis causes severe morbidity and mortality. Difficulty identifying causative organisms and a lack of effective therapies leads to variability in management. The recent emergence of novel diagnostic tools and the increased recognition of auto-immune encephalitis has the potential to change the approach to this disease. Our objective was to assess the current evaluation and management of childhood encephalitis.

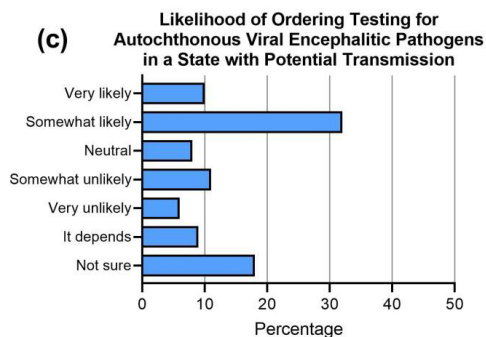
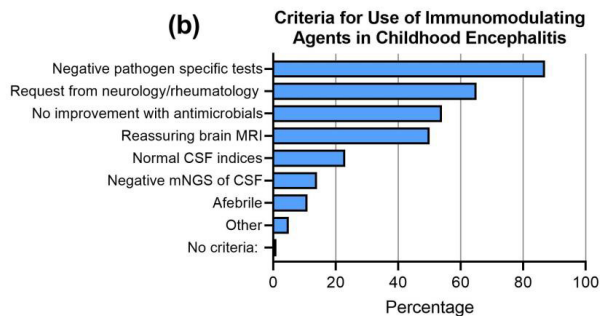
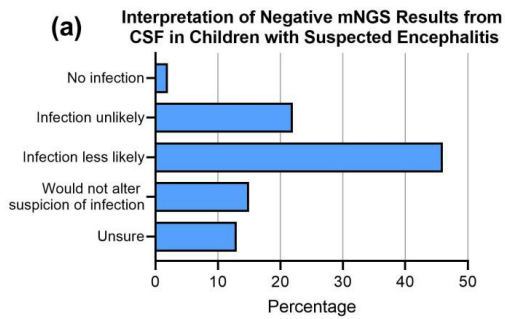
**Methods:** An 11-question confidential, web-based survey was distributed by the Emerging Infections Network (EIN) of the Infectious Disease Society of America to 370 Pediatric Infectious Disease (ID) physicians between January 29<sup>th</sup> and February 17<sup>th</sup>, 2020. Respondents were characterized by practice region, experience since fellowship, place of employment and primary hospital type. Responses were analyzed with SAS, v 9.4.

**Results:** Responses were obtained from 222 of 370 members (60%) (Table). Of the 222 respondents, 196 (88%) reported caring for children with suspected encephalitis and form the basis for this report. Multi-plex PCR testing of cerebrospinal fluid (CSF) in the initial evaluation of most children with suspected encephalitis was reported by 56% (with 65% of these respondents reporting the use of pathogen-specific confirmatory testing). CSF metagenomic next generation sequencing (mNGS) had been used by 47%, with 74% of all respondents stating they would use this test if likely diagnoses were excluded via standard testing (and 64% of these only using the test if the child was not improving). Variability in the interpretation of negative CSF mNGS results was reported (Fig 1a). Primary involvement of ID physicians in the diagnostic evaluation of auto-immune encephalitis was reported by 33%, yet only 55% of ID physicians reported feeling comfortable diagnosing this condition. Marked variation existed regarding criteria for the use of immunomodulating agents (Fig 1b) and the need for testing for autochthonous tropical viruses in the U.S. (Fig 1c).

Variable	Number (%) of Respondents
<b>Region of the Country</b>	
New England	8 (4%)
Mid-Atlantic	27 (12%)
East North-Central	41 (18%)
West North-Central	20 (9%)
South Atlantic	35 (16%)
East South Central	23 (10%)
West South Central	12 (5%)
Mountain	12 (5%)
Pacific	41 (18%)
Canada	3 (1%)
<b>Years Experience Since ID Fellowship</b>	
<5 years	55 (25%)*
5-14 years	77 (35%)
15-24 years	41 (18%)
≥25 years	49 (22%)
<b>Employment</b>	
Hospital/Clinic	61 (27%)
Private/group practice	15 (7%)
University Medical School	144 (65%)
VA/Military	0 (0%)
<b>Primary Hospital Type</b>	
Community	13 (6%)
Non-university teaching	58 (26%)
University	144 (65%)
VA Hospital or DOD	2 (1%)
City/County	5 (2%)

Background of 222 Respondents to an Emerging Infections Network Survey Assessing the Evaluation and Management of Pediatric Encephalitis. ID=Infectious Disease; VA=Veterans Affairs; DOD=Department of Defense \*Respondents were significantly more likely than non-respondents to have <5 years of ID experience (p=0.04).

Figure 1 Approaches to the Interpretation of CSF mNGS Results, Use of Immunomodulating Agents and Testing for Autochthonous Tropical Viral Pathogens in Children with Encephalitis



**Conclusion:** Variation exists in the evaluation and management of childhood encephalitis, including the application of new diagnostic modalities and management of autoimmune encephalitis. Updated standardized management guidelines may improve implementation of advances in this realm.

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### 356. Clinical characteristics of critically ill patients with COVID-19 and invasive pulmonary aspergillosis: a case series from Mexico City

Benjamin VALENTE-ACOSTA, MD MSc DTMH<sup>1</sup>; Francisco Moreno-Sanchez, MD<sup>1</sup>; Luis Espinosa-Aguilar, MD<sup>1</sup>; Irma Hoyo-Ulloa, MD, PhD<sup>1</sup>; Raquel Mendoza-Aguilar, MD<sup>1</sup>; Javier Garcia-Guerrero, MD<sup>1</sup>; Diego Ontañon-Zurita, MD<sup>1</sup>; Brenda Gomez-Gomez, MD<sup>1</sup>; Claudia Olvera-Guzman, MD<sup>1</sup>; Margarita Cebada-López, BMedSci<sup>1</sup>; Beatriz Zuñiga-Mejía, BMedSci<sup>1</sup>; <sup>1</sup>The American British Cowdray Medical Center, ALVARO OBREGON, Distrito Federal, Mexico

#### INFECTOMED

**Session:** P-12. COVID-19 Complications, Co-infections, and Clinical Outcomes

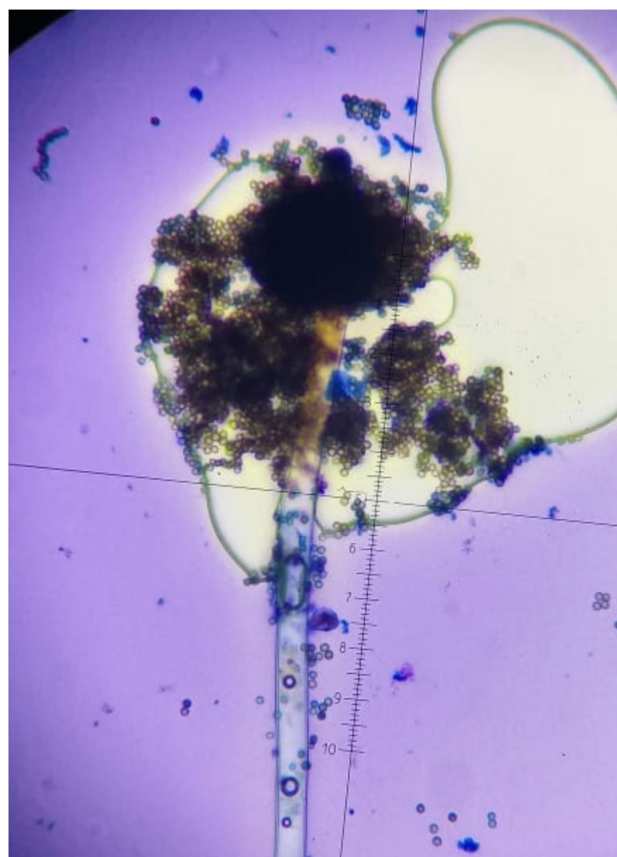
**Background:** COVID-19, caused by SARS-CoV-2, has emerged as a global public health emergency and has been the main cause of intensive care admission

during the pandemic. Invasive pulmonary aspergillosis (IPA) superinfection has been reported in case series of critically ill patients. Mexico has been widely affected by SARS-CoV-2. We present a case series of COVID-19-associated IPA at a teaching hospital in Mexico City.

**Methods:** We performed a retrospective analysis of COVID-19 patients admitted to the ABC Medical Center from March 13 to June 1, 2020. Only those with severe or critical COVID-19 were hospitalized. Patients with a diagnosis of putative IPA were analyzed. SARS-CoV-2 was diagnosed by Real-Time PCR from nasopharyngeal swabs. *Aspergillus* antigen testing in tracheal aspirate and serum was done with *Aspergillus*-specific galactomannoprotein (GP) ELISA (Euroimmun Medizinische Labordiagnostika). The study was approved by the hospital ethics committee.

**Results:** Among the 47 admitted patients who required invasive mechanical ventilation (IMV), we identified seven (14.9%) cases of IPA. The mean age was  $59.7 \pm 17.8$  years and five were male. All our patients had comorbidities, but none were under previous immunosuppressive treatment. All had critical COVID-19 pneumonia requiring IMV. All but one patient received corticosteroids, and five patients were treated with tocilizumab before IPA diagnosis. Putative IPA was diagnosed in six cases (86%) by a positive GP in tracheal aspirate, additionally in one of these, the tracheal aspirate culture also grew *Aspergillus niger*. The remaining one (14%) had a positive serum GP. The median time from COVID-19 to IPA diagnosis was 10 days. There were five bacterial co-infections, three with *Pseudomonas aeruginosa*, one with *Stenotrophomonas maltophilia*, and one with *Mycobacterium tuberculosis*. Six patients were treated with isavuconazole and one voriconazole. As of June 17, 2020, three patients had died, two patients had been discharged, and two were still in the intensive care unit receiving IMV.

*Aspergillus niger* isolated from a tracheal aspirate of a critically-ill COVID-19 patient



**Conclusion:** COVID-19-associated IPA had a lower prevalence than previously reported in other series. However, it appears to be linked to high mortality and could be associated with other bacterial coinfections.

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