Papilledema (n=8) and visual field deficits (n=11) improved significantly ($p < 0.0005$) after 2 months of pulse completion. Brain MRI showed improvement of radiological findings in 11 patients ($p = 0.001$). Five out of 7 patients who underwent audiological testing demonstrated hearing improvement after 3 weeks post-pulse. CSF cultures remained negative.

MOCA and Karnofsky score comparison at baseline and post pulse corticosteroid

Conclusion: PCT in this small cohort of PIIRS patients was associated with persistent improvements in CM-related complications with minimal toxicity and no recurrence of infection.

Disclosures: All Authors: No reported disclosures

48. Clinical Characteristics of Acute Flaccid Myelitis Cases Associated with Enteroviruses D68 and A71 — United States, 2018

Sarah Kidd, MD, MPH¹; Adriana Lopez, MHS¹; W. Allan Nix, BS¹; Gloria E. Anyalechi, MD MPH¹; Megumi Itoh, MD¹; Eileen L. Yee, MD¹; M. Steven Oberste, PhD¹; Janell A. Routh, MD, MHS¹; ¹Centers for Disease Control and Prevention, Atlanta, Georgia

Session: O-10. CNS Infections

Background: Acute flaccid myelitis (AFM) is an uncommon but serious condition that causes paralysis in previously healthy children. Multiple viruses can be associated with AFM. In 2018, enteroviruses D68 (EV-D68) and A71 (EV-A71) were the most common viruses detected among patients with confirmed AFM. We described and compared clinical characteristics of cases associated with EV-D68 and EV-A71.

Methods: Health departments report cases meeting AFM clinical criterion (acute onset of flaccid limb weakness) to the Centers for Disease Control and Prevention along with medical records. Confirmed AFM cases were patients who met clinical criterion and had magnetic resonance imaging (MRI) showing spinal cord lesions largely restricted to gray matter. We abstracted clinical data and laboratory results from records of confirmed case-patients with onset of limb weakness during 2018. EV-D68 and EV-A71 cases were compared using chi-square and Wilcoxon rank sum tests.

Results: Among 238 confirmed AFM cases, 34 had EV-D68 and 12 had EV-A71 detected in a respiratory, serum, stool, or cerebrospinal fluid specimen. Median age of EV-D68 and EV-A71 cases were 5.9 and 1.6 years, respectively ($p < 0.01$). EV-D68 cases came from 20 states, while 11/12 EV-A71 cases were from Colorado. Prodromal respiratory illness was more common among EV-D68 (97%) than EV-A71 cases (58%) ($p < 0.01$). Prodromal rash was more common among EV-A71 (58%) than EV-D68 cases (9%) ($p < 0.01$). At presentation, the most common symptoms accompanying limb weakness among EV-D68 cases were neck/back pain (59%), gait difficulty (56%), and fever (47%). Among EV-A71 cases, the most common symptoms were fever (67%), ataxia (67%), gait difficulty (50%), and altered consciousness (50%). EV-A71 cases were more likely to have ataxia, altered consciousness, and brainstem (92% vs. 45%) or cerebellar (75% vs. 9%) lesions on MRI (all $p < 0.01$). EV-D68 cases were more likely to require mechanical ventilation (44% vs. 8%, $p < 0.03$).

Conclusion: These national data suggest that EV-D68 and EV-A71 are associated with overlapping but different clinical phenotypes. Differences in demographics, prodromal illness, symptoms, and brain MRI findings were identified. Additional research is needed to determine whether pathogenesis and optimal treatment also vary by virus type.

Disclosures: All Authors: No reported disclosures

49. Clinical Characteristics of the 2019 Eastern Equine Encephalitis Virus Outbreak in Michigan

Adam T. Ladzinski, DO¹; Matthew T. Rumschlag, MD²; Aditya Mehta, MD³; Eric Edeward, MD³; Pimpawan Boapimp, MD⁴; Larry Morgan, DO⁵; Rolf Dieter Hollstein, MD MPH⁶; Brett W. Jagger, MD, PhD¹; ¹Western Michigan University Homer Stryker MD School of Medicine, Kalamazoo, Michigan; ²Western Michigan University School of Medicine, Charlottesville, Michigan; ³Western Michigan University Homer Stryker MD School of Medicine, KALAMAZOO, Michigan; ⁴Western Michigan University Homery Stryker MD School of Medicine, Kalamazoo, Michigan; ⁵Bronson Methodist Hospital and Western Michigan University Homer H. Stryker School of Medicine, Kalamazoo, Michigan; ⁶Advanced Radiology Services / Michigan State University, Grand Rapids, Michigan

Session: O-10. CNS Infections

Background: Eastern Equine Encephalitis Virus (EEEV) is a mosquito-borne alphavirus responsible for unpredictable outbreaks of severe neurologic disease in humans. While the vast majority of human EEEV infections are either asymptomatic or clinically nonspecific, a minority of patients develops neuroinvasive disease (EEE), which is a devastating illness with a mortality of at least 30%. No treatments are known to be effective. EEEV infection is relatively rare in the United States, with an annual average nationwide incidence of 7 cases between 2009 and 2018. However, 2019 was an exceptionally active year for human EEEV disease, yielding 38 nationwide confirmed cases, including 10 in Michigan, comprising the state's largest outbreak to date.

Methods: EEE cases were identified by a regional network of physicians. Cases were defined by presentation with clinical symptoms of encephalitis, and by identification of EEEV IgM antibodies or RNA in cerebrospinal fluid (CSF), or EEEV-specific IgM in serum as confirmed by plaque reduction neutralization test. Radiographic images were evaluated and clinical data abstracted through chart review and clinical follow-up where possible.

Results: Records from 7 patients were identified and reviewed. The median age was 64, with a male predominance, and all presented in August. Notably, commercial arboviral CSF serology was uniformly negative on the initial CSF sample, and diagnosis was not made until a mean of 23 days (range: 12–38 days) after presentation. Testing in public health laboratories yielded the diagnosis in 5 out of 7 cases. Imaging findings were heterogeneous, but most patients exhibited abnormal findings in the thalamus and/or basal ganglia, and one patient displayed prominent pons and mid-brain abnormalities. 4 patients died, while 2 patients survived with severe neurologic sequelae, and 1 patient recovered without sequelae. One patient underwent a limited postmortem examination, which revealed diffuse meningoencephalitis and focal vascular necrosis.

Conclusion: EEE is a frequently fatal condition whose diagnosis is often delayed, and for which no effective treatments are known. Improved diagnostics are needed to facilitate further clinical studies of EEE and encourage the development of potential therapies.

Disclosures: All Authors: No reported disclosures

50. Evaluation of Discordant Results Between Filmarray Meningitis/encephalitis Panel and Conventional Testing in Pediatric Patients: A Multi-site Retrospective Cohort Study

Maheswari Ekambaram, MD¹; Aleisha M. Nabower, MD, MHPTT²; Krow Ampofo, MBChB³; Nathan S. Gollehon, MD, MHPTT⁴; Nathaniel Goodrich, MD⁵; Kimberly C. Martin, DO, MPH⁶; Russell McCulloh, MD¹; Prabi Rajbhandari, MD, FAAP⁶; Jessica Snowden, MD, MHPTT⁷; ¹Baylor Scott and White Medical Center, Round Rock, Texas; ²CSP-Children's Specialty Physicians, Omaha, Nebraska; ³University of Utah, Salt Lake City, Utah; ⁴University of Nebraska Medical Center, Omaha, Nebraska; ⁵OU- Tulsa School of Community Medicine, Tulsa, Oklahoma; ⁶Akron Children's Hospital, Akron, Ohio; ⁷University of Arkansas for Medical Sciences, Little Rock, Arkansas

Session: O-10. CNS Infections

Background: FilmArray Meningitis/Encephalitis Panel (ME panel) has a 11% false positive and 2.2% false negative rate compared to conventional testing. We aim to describe characteristics, treatment decisions and outcomes in pediatric patients with discordant results between ME panel and conventional testing.

Methods: We conducted a multisite (n=4) retrospective review of patients < 18 years with positive cerebrospinal fluid (CSF) results by ME panel or conventional testing (CSF culture, Herpes Simplex Virus [HSV] and enterovirus [EV] PCR) from time of local ME panel implementation to February 2019. We excluded CSF obtained for non-infectious reasons. Demographic and clinical data were extracted from electronic medical records. Comparison between concordant and discordant results were made using Mann-Whitney test for continuous and Fisher's exact test for categorical variables.

Results: A total of 355 patients had at least 1 positive result. Baseline characteristics and pathogens are shown in Table 1 and 2. Of the 53 bacterial pathogens identifiable by ME panel, 31 (58%) had discordant results – 29 positive by ME panel only and 2 by culture only (both *E.coli*). Patients with bacterial pathogens identified by ME panel only had lower CSF WBC and protein but higher CSF glucose (Table 3). Five patients with bacteria identified on ME panel only were not treated as meningitis given lack of pleocytosis, no antibiotic pretreatment and negative repeat cultures. Of these, 4 recovered without complications but one had hypoxic encephalopathy.

Two patients had HSV noted in ME panel but individual PCR negative. The first was a 13-day-old with typical skin lesions and positive surface swab. The other was a 6-day old only with CSF pleocytosis. Both had abnormal neuroimaging and were treated as true cases. Of 24 who had both EV PCR and ME panel, 7 were positive by ME panel only and 3 by PCR only.

Table 1: Baseline Characteristics of the Study Population

Total N = 355	N (%)
Age	
<30 days	153 (43%)
30-90 days	103 (29%)
>90 days	99 (28%)
Prematurity if <90 days (data available for n= 248)	28 (11%)
Female	169 (47%)
Immunization status	
UpToDate	281(79%)
None	42 (12%)
Delayed	12 (3%)
Prior Neurosurgical History	11* (3%)
Neurological symptoms at presentation	104 (29%)
Antibiotics before lumbar puncture (n =141)	
<24 hours prior	113 (32%)
>24 hours prior	28 (8%)
Traumatic taps (>1000 RBC/μL)	101 (28.3%)
Conventional PCR testing done	
HSV	59 (17%)
Enterovirus	24 (7%)

*. Patients with neurosurgical history included 7 with ventriculoperitoneal shunts, 2 untetherings, 1 shunt + untethering, 1 craniotomy with hematoma evacuation, 1 external ventricular drain placement.

Table 2: Pathogens identified via CSF Culture, ME panel or Conventional PCR

Pathogens identified	N
Bacterial pathogens included in ME panel (n = 53)	
<i>Escherichia Coli (E. Coli)</i>	15
<i>Streptococcus pneumoniae (S. pneumoniae)</i>	12
<i>Streptococcus agalactiae (GBS)</i>	12
<i>Haemophilus influenzae (H. influenzae)</i>	10
<i>Listeria monocytogenes (L. monocytogenes)</i>	4
Bacterial pathogens NOT included in ME panel (n = 19)	
<i>Staphylococcus aureus (S.aureus)</i>	2
<i>Staphylococcus epidermidis (S.epidermidis)</i>	1
<i>Enterobacter</i>	2
<i>Pseudomonas</i>	1
<i>Enterococcus</i> *	1
<i>Serratia</i> *	1
<i>Neisseria not meningitidis or gonorrhea</i>	1
<i>Bacteroides Fragilis</i>	1
<i>Streptococcus intermedius</i>	1
<i>Suspected contaminants</i> †	8
Viral pathogens (n = 287)	
Enterovirus	174
Human Parechovirus	51
Human Herpes Virus 6 (HHV6)	46
HSV	14
Varicella Zoster virus	2
Fungal pathogens (n = 3)	
<i>Cryptococcus neoformans</i> ‡	2
<i>Candida parapsilosis</i>	1

*. Two separate CSF cultures positive and hence, treated as true pathogen.

†. Suspected contaminants include: *Staphylococcus hominis*, *Staphylococcus capitis*, *Bacillus*, *Micrococcus*, *Curtobacterium*, *Enterococcus*, *Corynebacterium*.

‡. - One identified only by culture and the other only by ME panel.

Total more than N = 355 due to more than 1 pathogen identified in 14 patients.

Table 3: Characteristics of Discordant Results for Bacterial Pathogens Tested in ME panel

Variable	ME panel + CSF Culture + (n= 22) ^a	ME panel + CSF Culture - (n = 29) ^b	P value
Age, n (%)			0.31
<30 days	6 (27%)	8 (28%)	
30-90 days	3 (14%)	9 (31%)	
>90 days	13 (59%)	12 (41%)	
Prematurity if <90 days, n (%)	1 (14%)	6 (46%)	0.33
Neurological symptom at presentation, n (%)	12 (55%)	12 (41%)	0.41
	10 (45%)	17 (59%)	0.41
Any antibiotic before lumbar puncture, n (%)			
Antibiotics >24 hour before lumbar puncture, n (%)	2 (9%)	4 (14%)	0.69
CSF with >1000 RBC/μL, n (%)	6 (21%)	5 (19%)	0.51
Blood Culture positive with same organism, n (%)	15 (71%)	4 (14%)	0.0001*
Median CSF White count (range)	927 (2-11976)	16 (0-8100)	0.0007*
Median CSF Glucose, mg/dL (range)	21 (1-69)	46 (5-73)	0.005*
Median CSF Protein, mg/dL (range)	200 (21-805)	68 (12-777)	0.004*
Treated as meningitis, n (%)	22 (100%)	24 (83%) ^c	0.062
Neurological impairment at discharge, n (%)	7 (32%)	3 (10%)	0.08
Death within 30 days	2 (9%)	0 (0%)	0.18

a- Pathogens positive by both ME panel and culture included GBS (7), *S. pneumoniae* (5), *E. Coli* (4), *H. influenzae* (4) and *L. monocytogenes* (2)

b- Pathogens detected by ME panel only included *E.coli* (9), *S.pneumoniae* (7), GBS (5), *L. monocytogenes* (2), *H.influenzae* (6)

c- The 5 patients with positive results only by ME panel and NOT treated as meningitis include *E.Coli* (4) and *S.pneumoniae* (1)

*. statistically significant at p<0.05

Conclusion: More than half of bacterial pathogens identified by ME panel did not have a corresponding positive CSF culture. No difference was noted by antibiotic pretreatment. Treatment decisions based on positive ME panel should be made in the appropriate clinical context. Likewise, a negative ME panel does not rule out infection especially when atypical organisms are suspected.

Disclosures: Krow Ampofo, MBChB, Merck (Grant/Research Support)

51. A Review of Human Herpesvirus 6 and Central Nervous System Disease in Oncology Patients

Guy H. Handley, IV, MD¹; Rodrigo Hasbun, MD, MPH²; Pablo C. Okhuysen, MD, FACP, FIDSA³; McGovern Medical School UT Health, Houston, Texas; ²University of Texas Health Science Center, Houston, Texas; ³The University of Texas MD Anderson Cancer Center, Houston, Texas, Houston, Texas

Session: O-10. CNS Infections

Background: Human herpesvirus 6 (HHV-6) infects most of the human population. With immunosuppression it can reactivate and cause clinical syndromes of central nervous system (CNS) dysfunction. Much of the literature describes cases after hematopoietic stem cell transplantation (HSCT), ranging from encephalitis to a defined post-transplant acute limbic encephalitis syndrome (PALE). Outside of HSCT, studies of HHV-6 encephalitis in cancer patients are limited to case reports.

Methods: In this retrospective review, we present data from all patients admitted to MD Anderson Cancer Center between March 2016 and December 2018 that met established definitions for encephalitis, aseptic meningitis or HHV-6 PALE with detectable HHV-6 DNA in the cerebrospinal fluid (CSF) detected using either the Viracor or Biofire® Meningitis Encephalitis (ME) Panel testing platforms and no other identified etiology. We extracted demographic features, known risk factors, imaging findings, CSF analysis, treatments and patient outcomes from medical records.

Results: 725 patients underwent HHV-6 testing during the study timeframe, with 19 (2.6%) cases of HHV-6 mediated CNS disease identified. Most patients, 13/19 (68%), had undergone HSCT. Median time to presentation was 31 days post-transplant.