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Background. In Mexico, several publications have mentioned Enterobacteriaceae as the main causes of bacterial meningitis (BM) in young infants (<3 months), with S. agalactiae (GBS) and other bacteria present in a much lesser extent; however, these studies have been performed mostly at Mexico City, and little is known on the northwest Mexico/US Border, particularly at Tijuana, Mexico (the highest transited frontier in the planet).

Methods. Since January 1, 2012 until December 31, 2017 (6 years) we underwent active/prospective surveillance to identify all causes of non-nosocomial–acquired BM in infants <3 months old at the Tijuana General Hospital, Mexico. Bacterial identification was performed either by cultures or PCR, pneumococcal serotyping by the Quellung Reaction (Statens Serum Institute) or PCR, and meningococcal serogrouping using the Pastorex-Agglutination Meningitis kit (Alere, Ltd.). Demographic, clinical, laboratory, and microbiological data were saved, and statistical analysis was merely descriptive.

Results. In 6 years, 20 BM cases (3.33 per year) were identified, among which 16 (80%) were newborns <1 month old. GBS was the leading cause (7 = 35%), followed by S. pneumoniae (4 = 20%, serotypes 19A, 33C, 18B, and 12), N. meningitidis (3 = 15%, serogroups C, Y, and B), Enterobacteriaceae (3 = 15%, E. coli, E. cloace, P. mirabilis), N. gonorrhoeae (2 = 10%) and L. monocytogenes (1 = 5%), see Figure 1. Overall lethality was of five (25%). Highest mortality was found in newborns <7 days old (66.6%), and BM caused by Enterobacteriaceae (66.6%). Among survivors, seven (35%) developed sequelae 3 months following discharge.

Conclusion. Etiology of BM in young infants in Tijuana differs from Mexico City, with GBS, S. pneumoniae, N. meningitidis as leading causes, along with Enterobacteriaceae. BM in young infants is associated with high mortality and morbidity, especially in newborns and those caused by Enterobacteriaceae. Preventive measures, such as mother screening for GBS carriage/penicillin prophylaxis, as well as early vaccination vs. S. pneumoniae and N. meningitidis should be considered based on further results obtained from this active surveillance in the future.

Fig - 1

CASES (%)

GBS • S. pneumoniae • N. meningitidis • Enterobacteriaceae • N. gonorrhoeae • L. monocytogenes

Disclosures. All authors: No reported disclosures.

349. Retrospective Descriptive Analysis of West Nile Neuroinvasive Disease in Northwest Louisiana

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Background. West Nile virus (WNV) infection has become endemic in the continental United States. Eighty percent of the West Nile virus infections are asymptomatic. One in 150 individuals with West Nile virus infection develops West Nile neuroinvasive disease (WNND). The neurological manifestations include encephalitis, meningoencephalitis, meningitis, and acute flaccid paralysis.

Methods. We performed a retrospective descriptive study in our tertiary care hospital in Louisiana to describe the clinical features, Cerebrospinal fluid (CSF) findings and clinical outcomes. Patients aged >18 years admitted in our hospital between January 1, 2012 and December 31, 2017 were included. Hospital Electronic Health records were screened for diagnosis of WNND by ICD codes and positive WNV antibody testing in CSF.

Results. There were a total of 23 patients identified with positive WNV IgM or IgG in CSF. Fifteen patients were males and eight were female. The median age was 48.8 years. Six patients were diagnosed with meningitis, 12 with encephalitis, and five with meningoencephalitis. Most Common presenting symptoms were altered mental status and fever in 15 patients. Only two patients gave history of mosquito bite. Incidence was peak in the month of August, July, and September. WNV IgG and IgM antibodies were positive in CSF in 13 patients. Four patients had only positive WNV IgG and six patients had only positive WNV IgM. The average number of days from the admission to diagnosis of infection ranged from 3 to 16 days with average of 8.9 days. CSF protein was >45 mg/dL in 12 patients and elevated white cell count (>5 mm<sup>3</sup>) in 20 patients. CSF protein >100 mg/dL was seen in nine patients. Lymphocytosis was present in 10 patients. The average length of stay was 13.3 days and nine patients required ICU stay. Only one patient was not given any antibiotics. The average duration of antibiotics was 6.4 days. On 1 year follow-up, eight patients had no residual deficits, four patients had residual deficits, two patients were deceased, and nine patients were lost to follow-up.

Conclusion. WNV infection has become endemic in Southern United States especially in summer months. Identifying the infection early in its clinical course would help to avoid unnecessary antibiotics when patients present with fever and meningeal symptoms. Including WNV antibodies in CSF studies is critical in making a diagnosis.

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350. Epidemiology of Bacterial Meningitis in Pediatric Population After the Introduction of Pneumococcal Conjugated Vaccine in Costa Rica

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Background. In Costa Rica (CR), bacterial meningitis (BM) is an important cause of morbi-mortality in the pediatric population. Pneumococcal meningitis was the leading cause of BM before 2009. PCV7 was introduced in the National Immunization Schedule (NIS) in 2009 (3 + 1 schedule) and then changed to PCV13 (2 + 1 schedule) in 2012. Our objective was to describe the epidemiology, bacteriology, clinical findings, and complications in patients with BM admitted to the only tertiary pediatric hospital in CR and compare these findings with the epidemiology of the pre-PCV era.

Methods. Retrospective, descriptive study of patients hospitalized with BM from January 2009 to December 2015. We described the first epidemiological study of BM after the introduction of PCV in NIS in CR.

Results. Seventy-six patients were enrolled. Forty-nine patients (64.5%) were male and the median age at admission was 18 months; 63 patients (82.8%) under 24 months of age, but 20 patients (31.7%) were under 2 months of age. Mean length of stay was 19.3 days (range 16.07–22.59). Only 13.2% patients had at least one PCV dose. S. pneumoniae was isolated in 21/76 (27.6%), followed by S. agalactiae in 20/76 (26.3%) and E. coli 13/76 (17.1%). N. meningitidis was not isolated during the study period. Only 9/21 pneumococcal isolates were typed: vaccine serotypes 5, 6B, 7E; and 14 were found in 3/9 patients (33.3%) and in 1/9 patients (11.1%) each, respectively; non-vaccine serotypes 9N, 10A, 18C, and 19A were found in 1/9 patients each. For the non-vaccine serotypes, S. pneumoniae isolates were penicillin susceptible. Complications were documented in 24/76 patients (31.6%), being hypacusia and neurological disabilities the most common. Mortality was documented in 4/76 (5.3%). The incidence of BM in the post-PCV era was dramatically reduced in comparison with the pre-PCV era, with a 54.7% reduction of all causes of BM and a 46.7% reduction in pneumococcal meningitis. Letality due to pneumococcal meningitis was also reduced from 20% to 14.3%.

Conclusion. In CR, BM is an important cause of high morbidity. Pneumococcal meningitis is still the leading cause of BM in our pediatric population, but a dramatic reduction in pneumococcal meningitis was observed after the introduction of PCV’s in our NIS. Mortality was lower than what is reported in industrialized countries.

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351. It Is Not Always Tuberculosis: Cytomegalovirus Polyradiculopathy and Encephalitis in Two Filipino Men With Advanced HIV Infection

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Session: 55. CNS Infections
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Background. Polyradiculopathy (PRP) and encephalitis are neurologic syndromes associated with 1% of cytomegalovirus (CMV) disease among patients with advanced HIV infection. Untreated patients die within 8 weeks. This case series and literature review highlights the clinical and laboratory features integral to the prompt diagnosis and treatment of these rare but serious manifestations of CMV disease among AIDS patients.

Methods. We document CMV PRP and encephalitis in two HIV-seropositive men seen in a tertiary hospital in the Philippines. Both patients presented with bilateral leg weakness, paresthesias, hyporeflexia, and urinary retention associated with confusion and memory lapses. In the two cases described, diagnosis of CMV disease was delayed because it was not immediately entertained. Tuberculosis involving the nervous system was first ruled out.

Results. The first case was a 31-year-old male with a baseline CD4 count of 9 cells/mm<sup>3</sup> who presented with signs and symptoms of bilateral leg weakness and parasthesias 3 weeks after initiation of antiretrovirals (ART). CMV viremia was detected by PCR. Ganciclovir was initiated late, and he subsequently died of multiorgan failure.

The second case was a 29-year-old male with a baseline CD4 count of 2 cells/mm<sup>3</sup> CMV DNA PCR was detected in the CSF. He died prior to initiation of anti-CMV therapy.

Conclusion. CMV-related neurologic complications are uncommon, but often fatal when appropriate anti-CMV therapy is not initiated promptly. The diagnosis of
CMV PRP should be considered in patients with advanced immunosuppression presenting with ascending paralysis, areflexia, and urinary retention with typical CSF abnormalities (polyomaviral pleocytosis, elevated protein concentration, and hypoglycorrhachia).

**Table 1. Summary of Presenting Signs and Symptoms of the Two Cases in Comparison to the 103 Patients with CMV PRP in Anders and Goebel’s Review**

| Sign or Symptom | Anders and Goebel [2] | Case 1 | Case 2 |
|-----------------|-----------------------|--------|--------|
| Lower limb weakness | 100% | Present | Present |
| Lower limb areflexia | 100% | Present | Present |
| Urinary retention | 94% | Present | Present |
| Parethesia | 79% | Present | Present |
| Sensory loss (legs) | 72% | Present | Present |
| Fecal incontinence | 67% | Absent | Absent |
| Lumbar pain | 36% | Absent | Absent |
| Babinski sign | 16% | Present | Absent |

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352. **Towards Earlier Diagnosis of Transmissible Spongiform Encephalopathies (TSE): A Case Series, Including One Associated With Squirrel Brain Consumption**

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**Session:** 55. CNS Infections

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

**Background.** TSEs present diagnostic and infection control (IC) challenges. Creutzfeldt-Jakob Disease (CJD) is the most common human TSE, occurring in 1-2 million/year in the United States, but other zoonotic factors or transmissions remain incompletely understood. Prompted by the occurrence of four suspected cases from November 2017 to April 2018, we present a case series of suspected CJD to illustrate its variable presentation and the need for more rapid identification for implementation of disease-specific disinfection, sterilization, and quarantine measures.

**Methods.** We defined a case as any patient with a rapidly progressive dementia or neurologic illness and laboratory tests for CJD. IC and laboratory databases and electronic medical records were reviewed to identify possible cases from 2013 to 2018.

**Results.** Five patients met case definition. The average time to suspecting and confirming a diagnosis was 5.2 and 14.2 days, respectively.

| Case | 1 | 2 | 3 | 4 | 5 |
|------|---|---|---|---|---|
| CJD | V | S | S | S | No |
| Days to suspecting diagnosis | 16 | 12 | 18 | 12 | >11 |
| Days to confirmation of illness | 5 | 3 | >2 | P | P |
| Outcome | Died | Dead | Alive | Alive | Alive |

NSC, nonspecific changes; P, pending; S, parodic; V, variant; RT-QuIC, Realtime Oaking Induced Conversion.

**Conclusion.** Protein in presentation, the diagnosis of CJD can be delayed. Variant CJD and emerging zoonotic TSEs should be considered in differential diagnoses and IC measures. Improved empiric classification algorithms and tests with faster turnaround times are needed.

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353. **HSV-Induced Anti-NMDAR Encephalitis**

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**Session:** 55. CNS Infections

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

**Background.** N-Methyl-d-aspartate receptor (NMDAR) is a glutamate receptor on nerve cells that controls synaptic plasticity and memory function. Anti-NMDAR encephalitis is a rare autoimmune disease causes by antibodies (Ab) against GluN1 subunit of the NMDAR. Preceding Herpes simplex virus infection is a well-recognized infectious trigger. First reported in female patients with ovarian teratoma, and more recently with germ cell tumors in males.

**Methods.** A 61-year-old male presented with agitation, behavioral changes, and confusion. Eight months prior, he was diagnosed with HSVE and treated with 21 days of intravenous acyclovir. Following therapy, he suffered from residual cognitive and personality changes with slow recovery until 3 months prior to admission encephalopathy again worsened. An extensive investigation was unrevealing except for a CSF lymphocytic pleocytosis, positive anti-NMDAR Ab titer 1:64 and imaging changes consistent with post-viral encephalitis. At that point, HSV-induced anti-NMDAR encephalitis was diagnosed. A PET scan did not show any occult malignancies. Two cycles of plasmapheresis were attempted over 4 months period with limited success in improving his worsening neurologic deficits.

**Results.** HSVVE induced autoimmune encephalitis is a rare complication, primarily affecting children and young adults. Auto Ab develop 1–4 weeks after HSVE, manifesting as choreoathetosis and/or orofacial dyskinesia in children and psychiatric symptoms in young adults. CSF Ab titer is highly sensitive and specific. Proposed mechanisms include either viral reactivation or a post-infectious autoimmune process. Immunotherapy with tumor resection (if present) has been promising with less frequent need for second-line therapy in primary condition, compare with HSVE-induced condition where tumors have not been reported and resistance to first-line therapy has been observed. Progressive decline in neuropsychological testing in patients with HSVE prompted an evaluation for paraneoplastic conditions in our patient that ultimately revealed the diagnosis. The unique feature of this case is the age of the patient and preceding HSVE which triggered this autoimmune process.

**Conclusion.** Physicians should consider anti-NMDAR encephalitis in the differentials for relapsing patients post HSVE.

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

354. **Evidence of Aspergillus Among Patients With Influenza-Associated Hospitalizations—United States, 2005–2017**

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

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**Background.** Invasive aspergillosis primarily affects immunosuppressed persons, but it has also been observed in immunocompetent patients with severe influenza. Several case series suggest that severe influenza infection might be an under-recognized risk factor for aspergillosis. We examined the frequency of aspergillus-related hospital discharge codes in a national surveillance database of influenza hospitalizations.

**Methods.** We analyzed laboratory-confirmed influenza-associated hospitalizations reported during 2005–2017 to Centers for Disease Control and Prevention (CDC)’s Influenza Hospitalization Surveillance Network (FluSurv-NET), which includes children and adults in 13 states. We obtained data on underlying conditions leading to hospitalization and clinical course through medical chart abstraction. We defined invasive aspergillosis cases with codes: 117.3 (aspergillosis), 484.6 (pneumonia in aspergillosis), B44.0 (invasive aspergillosis). Among 92,671 influenza hospitalizations, we identified 94 cases (0.1%)

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