1170. CSF HSV PCR Testing in Adults and Children with Meningitis and Encephalitis

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Background. Herpes simplex virus (HSV) is a common treatable cause of meningitis and encephalitis. Delayed antiviral therapy is associated with worse clinical outcomes in HSV encephalitis.

Objectives. To determine the utilization of a cerebrospinal fluid (CSF) HSV polymerase chain reaction (PCR) and identify predictors for a positive HSV PCR result.

Methods. A retrospective review of 751 adults and children with meningitis and encephalitis at 9 hospitals in Houston TX from January 1 2005 to December 31 2010.

Results. Of 751 patients, 331 (44%) underwent CSF HSV PCR testing. Adults were more commonly tested than children (84% vs. 69%, P < 0.0001). Additionally, patients with more comorbidities and clinical findings of encephalitis (e.g., altered mental status, focal neurological findings, seizures) were more commonly tested for HSV (P < 0.0001). Patients tested for HSV were also more likely to be evaluated for West Nile Virus, receive empiric acyclovir and have worse outcomes (P < 0.001). In total, 48 of 331 (14.5%) patients tested positive for HSV. We compared HSV PCR positivity for a positive HSV PCR on logistic regression analysis were stiff neck (odds ratio [OR], 2.181 [1.090–4.366], P = 0.028), lymphocytic pleocytosis >50% lymphocytes (OR, 6.187 [1.412–27.11] P = 0.016, and CSF protein >100mg/dl (OR, 3.279 [1.05–9.73] P = 0.032).

Conclusion. CSF HSV PCR is underutilized in community acquired meningitis and encephalitis and is done more frequently in adults and in those with an encephalitis presentation.

Disclosures. R. Hasbun, Biometri: Consultant, Consulting fee Biotech: Speaker's Bureau, Speaker honorarium Merck: Speaker's Bureau, Speaker honorarium Pfizer: Speaker's Bureau, Speaker honorarium Medicine's Co: Speaker's Bureau, Speaker honorarium

1117. The Expression of hsp-miRNA-200b-3p and -200c-3p in Human Cytomegalovirus-informed Formalin-Fixed, Paraffin-Embedded Tissues

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Background. Human cytomegalovirus (HCMV), which exist as asymptomatic carriers in the general population, can be reactivated in individuals with immune suppression and cause severe organ inflammation. HCMV infection in the blood (viremia) is more commonly identified in patients with HAdV infection with high viral burden (VB) compared with those with low VB in the RT. We sought to determine the frequency of HAdV viremia in immunocompromised children who have detectable HAdV in the RT.

Methods. We prospectively identified + HAdV in RT specimens from emergency department or inpatients using semi-quantitative real-time PCR (Ct < 40) or multiplex viral PCR (FILMARRAY RESPIRATORY PANEL v1.7) and prospectively collected available whole blood from 8/2013 to 2/2015. Blood was considered positive for HAdV if Ct <40 in whole blood. We compared virologic, including HAdV type from the RT and blood, and clinical characteristics between viroemic and non-viroemic groups using Mann–Whitney or chi-square as appropriate.

Results. There were 196 unique patients with + HAdV in RT specimens as well as available blood for PCR (median age:1.3 years). Blood and RT samples were obtained on the same calendar day in 78% of patients. Among these 196 patients, 163 (83%) were hospitalized and 58 (36%) were admitted to PICU. HAdV was detected in the blood in 33% of patients. Upper respiratory tract infections were more common (P = 0.026) and the duration of fever at the time of enrollment was longer in the viremia group (2.8 days vs. 2 days, P = 0.034). Coinfections with bacterial pathogens from sterile sites were only found in the non-viroemic group (4%); these included S. aureus or pneumococcal bacteria, E. coli urinary tract infections, or pneumococcal pneumonia. HAdV VB in RT were significantly higher in the viremic group (median Ct: 25.01 vs. 36.38, P < 0.001).

Conclusion. HAdV viremia is relatively common in immunocompromised children and infection in the RT with significantly higher VB in the RT, but this didn’t seem to be correlated with disease severity. HAdV viremia may be useful tool to add further evidence of acute HAdV infection.

Disclosures. A. Leber, BioFire Diagnostics: Research Contractor and Scientific Advisor, Research support, Speaker honorarium and Travel expenses

1173. Molecular Epidemiological Investigation of Human Parainfluenza 3 Virus Outbreak in a Pediatric Bone Marrow Transplantation Unit

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Background. Human parainfluenza virus 3 (hPIV3), a common cause of respiratory infections in children, can cause nosocomial outbreaks in patients undergoing hematopoietic stem cell transplantation, resulting in significant morbidity and mortality. Between July and August 2016, an increased number of hPIV3 infections were identified in a pediatric bone marrow transplant unit (BMT). Two patients were identified in late July and 4 patients in August. We undertook molecular typing of hPIV3 to determine whether cases represented multiple introductions of community virus strains or patient to patient transmission of a single strain. Previous reports of molecular typing have targeted either the F (fusion protein) gene or HN (hemagglutinin-neuraminidase) gene. We compared results using both methods direct from clinical specimens.

Methods. Nasopharyngeal (NP) swabs from 6 patients in BMT ward and 6 patients hospitalized on other wards had hPIV3 detected by the LuminexXTag Respiratory Pathogen Panel over 2 months. For the F gene a single pair of primers were used to first amplify then sequence a 278 basepair (bp) region by reverse-transcriptase PCR. Respiratory Pathogen Panel over 2 months. For the F gene a single pair of primers were used to first amplify then sequence a 278 basepair (bp) region by reverse-transcriptase PCR. Results. The low expression of hsp-miRNA-200b-3p and -200c-3p could play a pathophysiology role of development of HCMV tissue-invasive disease.

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1172. Human Adenovirus (HAdV) Viremia in Immunocompetent Children with HAdV Infection in Respiratory Specimens: Does Viremia Predict Severity of Illness?

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Background. The interpretation of HAdV PCR from upper respiratory tract (RT) specimens can be challenging due to prolonged low grade viral shedding. We hypothesized that the detection of hAdV in the blood (viremia) is more commonly identified in patients with HAdV infection with high viral burden (VB) compared with those with low VB in the RT. We sought to determine the frequency of HAdV viremia in immunocompromised children who have detectable HAdV in the RT.

Methods. We prospectively identified + HAdV in RT specimens from emergency department or inpatients using semi-quantitative real-time PCR (Ct < 40) or multiplex viral PCR (FILMARRAY RESPIRATORY PANEL v1.7) and prospectively collected available whole blood from 8/2013 to 2/2015. Blood was considered positive for HAdV if Ct <40 in whole blood. We compared virologic, including HAdV type from the RT and blood, and clinical characteristics between viroemic and non-viroemic groups using Mann–Whitney or chi-square as appropriate.

Results. There were 196 unique patients with + HAdV in RT specimens as well as available blood for PCR (median age:1.3 years). Blood and RT samples were obtained on the same calendar day in 78% of patients. Among these 196 patients, 163 (83%) were hospitalized and 58 (36%) were admitted to PICU. HAdV was detected in the blood in 33% of patients. Upper respiratory tract infections were more common (P = 0.026) and the duration of fever at the time of enrollment was longer in the viremia group (2.8 days vs. 2 days, P = 0.034). Coinfections with bacterial pathogens from sterile sites were only found in the non-viroemic group (4%); these included S. aureus or pneumococcal bacteria, E. coli urinary tract infections, or pneumococcal pneumonia. HAdV VB in RT were significantly higher in the viremic group (median Ct: 25.01 vs. 36.38, P < 0.001).

Conclusion. HAdV viremia is relatively common in immunocompromised children and infection in the RT with significantly higher VB in the RT, but this didn’t seem to be correlated with disease severity. HAdV viremia may be useful tool to add further evidence of acute HAdV infection.

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