received research funds to conduct the study. S. Chen, Novavax; Collaborator, Research grant. V. Shinde, Novavax Inc.; Collaborator, My employer received research funds to conduct the study.


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Session: 139. Adult Viral Infection
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Background. Respiratory syncytial virus (RSV), parainfluenza virus (PIV) and influenza virus are common respiratory viral infections (RVIs) implicated in hematopoietic stem cell transplant (HSCT) recipients. Despite their possible associated with high rates of pneumonia and mortality, their clinical and economic burden has not been well studied.

Methods. HSCT recipients with documented RVI who were treated at our institution between September 2012 and October 2015 were included in the study. We used Vizient (formerly University Health Consortium) clinical database to collect and compare total costs, including length of stay, ICU admission rates, intravenous immunoglobulin use, steroid use, and mortality rates among RVIs in HSCT recipients. Encounter-specific demographics, risk factors, underlying cancer, and outcomes were also collected. Multiple linear regression analyses were applied to identify predictors of higher total cost associated with RVI in HSCT recipients at MD Anderson.

Results. Average total cost per encounter was $49,371 for RSV, $29,679 for PIV, and $15,077 for Flu. A total of 1,636 hospitalization days (d) were attributed to these RVIs with an average of 7 d per RSV, 8 d per PIV, and 5 d for Flu infection. The average length of stay was 12% for RSV, 9% for PIV, and 4% for Flu. Around 11% of total RVI encounters had active graft-vs-host disease at the time of their RVI. Out of the patients with upper respiratory infection, 20% RSV, 44% PIV, and 21% Flu progressed to pneumonia during the 28 d of the study period. Of the 246 total RVI encounters, overall all-cause mortality rate was 6% (RSV: 8% [9/88], PIV: 1% [1/70] and Flu: 8% [67/67]). Length of stay, ICU admission, and receiving intravenous immunoglobulin were strong predictors of higher cost for all RVIs.

Conclusion. This study underscores the significant impact of RVIs in terms of economic and clinical burden in HSCT recipients. Major differences in total costs per encounter across the three RVIs were observed. This cost and clinical data may be helpful for future cost effectiveness studies in this population.

Disclosures. All authors: No reported disclosures.

1052. Severe Fever with Thrombocytopenia Syndrome Virus Infection Associated with Hemophagocytic Lymphohistiocytosis as Poor Prognostic Factor

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Session: 139. Adult Viral Infection
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Background. Severe fever with thrombocytopenia (SFTS) is an emerging infectious disease caused by a novel bunyavirus designated SFTS virus (SFTSV) with a high fatality rate. Hemophagocytic lymphohistiocytosis (HLH) is an immune-mediated life-threatening disease triggered by infections, neoplasms and noninfectious inflammatory diseases. A few HLH associated with SFTSV were reported. According to the diagnostic criteria of HLH, 11 patients with SFTSV were reviewed.

Methods. During last 2 years (2015-2016), 11 SFTS patients were diagnosed at the Wonju Severance Christian Hospital, Yonsei University Wonju College of Medicine, Wonju, South Korea. Clinical features were analyzed using diagnostic criteria of HLH. We retrospectively reviewed the charts of 718 consecutive patients clinically diagnosed with SFTS-infected patients associated with clinical features of HLH.

Results. Of 11 patients, four patients were fulfilled the diagnostic criteria of 2004 HLH trial (five of eight criteria). Two patients were fulfilled the four criteria. Five patients were fulfilled three or less criteria. Three of six patients who fulfilled four or more criteria were died. There was no mortality in five patients who fulfilled three or less criteria. Hemophagocytosis in bone marrow (BM) was observed in all six patients who were taken BM study.

Conclusion. In SFTS, HLH was severe clinical feature and it might be associated with poor prognosis.

Disclosures. All authors: No reported disclosures.

1053. Factors for Hospitalizations and Neurologic Complications in Zika Virus Infection in the Department of Veterans Affairs (VA)

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Background. Zika virus (ZIKV) is an important flavivirus, but severity of infection is poorly described in adults. We investigated factors associated with hospitalization and neurologic complications as measures of severity.

Methods. ZIKV cases from December 1, 2015 to October 31, 2016 were identified from clinical samples tested in VA, state and commercial laboratories, and patients were followed until 3/31/2017. ZIKV positive patients (RT-PCR or screening IgM positive confirmed by a plaque-reduction neutralization test [PRNT]) IgM positive for ZIKV alone or including dengue virus) were reviewed for demographic and clinical factors. Logistic regression analysis was performed to evaluate factors associated with 1) hospitalization and 2) neurologic complications in VA ZIKV positive patients.

Results. 736 of 1,538 (48%) patients tested were ZIKV positive; 655 (89%) were male and 683 (93%) were diagnosed at the VA Caribbean Healthcare System (VACHS). In total, 94 (13%) were hospitalized with 91 (12%) at VACHS. 19 (3%) patients, all at VACHS, died from any cause after ZIKV diagnosis. Hospitalization was more likely with increased age, co-morbidities, neurologic symptoms, thrombocytopenia, or predmission glucocorticoid use, and less likely if rash was present (Table 1). Hospitalization, prior cerebrovascular disease and dementia were associated with neurologic complications. Conclusion. Older Veterans with multiple comorbidities or presenting with neurologic symptoms were more likely to be hospitalized after ZIKV infection, and those with a prior history of cerebrovascular disease and dementia were at increased risk for neurologic complications.

Table 1. Factors associated with hospitalization and neurologic complications among Veterans with ZIKV infection, December 1, 2015–October 31, 2016.

<table>
<thead>
<tr>
<th>Hospitalization Factors</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group (10 years)</td>
<td>1.3 (1.0, 1.8)</td>
</tr>
<tr>
<td>Charlson co-morbidity index (age-adjusted)</td>
<td>1.05 (1.0, 1.4)</td>
</tr>
<tr>
<td>Connective tissue disease</td>
<td>1.0 (1.3, 1.7)</td>
</tr>
<tr>
<td>Congestive heart failure</td>
<td>4.9 (1.8, 13.5)</td>
</tr>
<tr>
<td>Neurological symptoms</td>
<td>5.3 (2.4, 11.7)</td>
</tr>
<tr>
<td>Thrombocytopenia (&lt;150 platelets/μL)</td>
<td>4.7 (2.2, 10.0)</td>
</tr>
<tr>
<td>Glucocorticoid use (within 30 days of ZIKV testing)</td>
<td>16.8 (9.5, 157.0)</td>
</tr>
</tbody>
</table>

Rash | 0.23 (0.11, 0.47) |

Neurologic complication factors

Hospitalized | 5.9 (2.9, 12.2) |

Cerebrovascular disease | 4.9 (1.7, 14.4) |

Dementia | 2.8 (1.2, 6.6) |

Odds, adjusted odds ratio; CI, confidence interval.

Disclosures. All authors: No reported disclosures.

1054. Clinical and Laboratory Characteristics of Parvovirus B19 Infection During 2013/2014 Outbreak in Zagreb, Croatia

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Session: 139. Adult Viral Infection
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Background. Human Parvovirus B19 (HPV-B19) occurs worldwide and causes most afebrile, arthralgic or arthritic disease and occurs in a form of cyclic local epidemics. The aim of this study was to analyze clinical features and complication rates of acute HPV-B19 infection in different age groups.

Methods. We retrospectively reviewed the charts of 718 consecutive patients clinically diagnosed with acute HPV-B19 infection who visited outpatient department at the University Hospital for Infectious Diseases in Zagreb, Croatia during 2013–2014 outbreak. In 212 patients (298 tested) diagnosis was confirmed by positive IgM antibodies and/or HPV-B19 DNA in peripheral blood.

Results. Outbreak started in June 2013 and had a peak in April 2014, with highest prevalence in schoolchildren. There were no difference in clinical presentation or laboratory findings between clinically and serologically diagnosed patients. Biphase presentation, fever, myalgia, arthralgia, headache and peripheral edema were more frequent in adults, but “slapped cheeks” was found predominantly in children. Complications were more common in adults, most commonly hemolytic disorders (mild anemia,
Conclusion. Parvovirus B19 infection has different clinical presentation, laboratory findings and complications in children and adults. Since the diversity of the clinical manifestations in adults may be misleading, the infection in adults should be suspected when disease is prevalent in children.

Disclosures. *All authors: No reported disclosures.

1055. Haemophilus Influenzae Type B Invasive Disease in a Pediatric Hospital of Argentina

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Background. Since the vaccination strategy is a three-dose primary series (at two, Active surveillance is important to opportually detect variations on these trends.

Methods. Cross-sectional study, including all hospitalized patients with Hib infection since 2012 to May 2017 at Hospital de Niños “Ricardo Güiterz” in Buenos Aires, Argentina.

Results. Twenty previously healthy children were admitted. Male/female ratio 1.81. Median age: 12 (range 45 days-114 months); 85% younger than 2 years and 35% younger than 6 months. Nine patients (45%) had complete vaccination schedule, with three or more doses of DTP-Hib-HBV vaccine. Hospitalization Hib infections by year in Table 1.

<table>
<thead>
<tr>
<th>Year</th>
<th>Hib administrations (n)</th>
<th>Total hospital admisions (n)</th>
<th>Hospitalization rates (per 10,000 administrations/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>1</td>
<td>7,964</td>
<td>1.02</td>
</tr>
<tr>
<td>2013</td>
<td>2</td>
<td>9,304</td>
<td>2.15 IC 95% 0.26–7.76</td>
</tr>
<tr>
<td>2014</td>
<td>3</td>
<td>9,066</td>
<td>3.31 IC 95% 0.68–13.81</td>
</tr>
<tr>
<td>2015</td>
<td>6</td>
<td>9,450</td>
<td>6.35 IC 95% 2.33–13.81</td>
</tr>
<tr>
<td>2016</td>
<td>8</td>
<td>9,780</td>
<td>8.18 IC 95% 3.5–6.11</td>
</tr>
</tbody>
</table>

Clinical presentation: meningitis (14/20), pneumonia (6/20) and arthritis (5/20), osteomyelitis (1/20). All patients with meningitis, 25% of pneumonias and 50% of arthritics had positive blood cultures. Hib was isolated in blood in 17/20 cases, cerebrospinal fluid in 7/14, joint fluid in 3/5 and pleural fluid in 2/6. Median WBC: 12,400 mm3 (1,600–42,900) and median C-reactive protein level 111 mg/L (7–358). Median days of hospitalization was 13 (8–40). Nine patients required intensive care, four of them required mechanical ventilation. No patients died. Immunological studies ruled out immunodeficiency in 10 patients although four continues under study.

Conclusion. (i) Burden of invasive Hib infections have increased over the last few years in our setting. (ii) Most of patient had adequate immunization schedule for age; (iii) Surveillance studies should be continued to confirm these preliminary results as well as to evaluate possible causes.

Disclosures. All authors: No reported disclosures.

1056. Single-Dose Universal Hepatitis A Immunization in 1-Year-Old Infants in Argentina: High Prevalence of Protective Antibodies up to 11 Years Following Vaccination

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Session: 140. Assorted Pediatric Vaccines
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Background. Single-dose Hepatitis A Virus (HAV) vaccination was implemented in all Argentinean children aged 12 months in 2005, instead of the standard two-dose schedule. Previous studies demonstrated a dramatic decline in HAV infection rates, fulminating hepatitis, and liver transplantation along with low viral circulation and high prevalence of protective antibody response 8 years following the intervention. This study assessed long-term seroprotection against HAV after vaccination with this novel scheme.

Methods. Children who received one dose of HAV vaccine at 1 year of age, at least nine years before enrollment, were included at three centers in Argentina between May 2015 and November 2016. Demographic and socioracial characteristics of the child, mother and home were collected through a questionnaire after informed consent signature. Blood samples were tested for anti-HAV antibodies. Antibody titers ≥10 mIU/mL were considered seroprotective. Logistic regression analysis was done to evaluate associations between different variables and seroprotection was found. Geometric mean concentration (GMC) of HAV Ab titers was 28.0 mIU/mL (95% CI: 26.8–29.3 mIU/mL).

Results. Of 1119 children included, 97.0% lived in urban areas. 92.7% had safe water access and 57.8% had sewers at home. Mean age was 10.7 years, and the mean post-vaccination interval was 9.7 years (Range: 9.0–11.3 years). Of the total, 87.6% had protective antibodies against HAV. Higher seroprotection rates were observed in Santa Fe compared with the global rate (91.9% vs 87.6%). OR 1.94 (95% CI: 1.27–2.95; P = 0.002). In contrast, lowest rates resulted in San Justo, Buenos Aires (81.4% vs 87.6% OR 0.45 (95% CI: 0.32–0.65); P <0.001). No association between socio-economic variables and seroprotection was found. Geometric median concentration (GMC) of HAV Ab titers was 28.0 mIU/mL (95% CI 26.8–29.3 mIU/mL).

Conclusion. Single-dose universal hepatitis A immunization in infants resulted in sustained immunological protection up to 11 years in Argentina. Lower seroprevalence rates in San Justo have no clear reason and were not associated with an increase in cases in that area. These findings along with the low current disease burden confirm the success of the intervention.

Disclosures. All authors: No reported disclosures.

1057. No Viral Spreading After Rotavirus Vaccination in NICU

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Session: 140. Assorted Pediatric Vaccines
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Background. Preterm and low birth weight infants are considered to be high risk for severe rotavirus gastroenteritis. However, it has been demonstrated that many infants are ineligible for receiving rotavirus vaccine due to the age limitation within the neonatal intensive care unit (NICU). We sought to elucidate the safety of rotavirus (RV) vaccination in NICU by assessing vaccine virus transmission from vaccinated infants to NICU.

Methods. This study was designed as the prospective study conducted at the NICU of Fujita Health University hospital and Konan Kosei Hospital. This study was approved by the ethical committee in our university. Premature age-eligible infants vacant to administered rotavirus vaccines were serially collected from unvaccinated infants (UVI) and vaccinated infants (VI) who received either the pentavalent rotavirus vaccine (RVS) or monovalent rotavirus vaccine (RV). During October 10, 2014 and December 25, 2015, 19 VIs and 49 UVIs were enrolled in this study. Contact immunization was carried out in NICU. All stool samples were analyzed by real-time RT PCR for detection of RV5, RV1, and wild-type strains' genomes.