2630. Treatment of RSV Lower Respiratory Tract Infection in Two Immunocompromised Children with Polyclonal Immunoglobulin Containing Standardized Levels of Neutralizing Anti-RSV Antibody

Emily Ruth. Levy, MD1; Theresa Madigan, MD2; Matthew Binnicker, PhD1; Kimberly monod, MD,PhD3; W Charles Huskins, MD, MSc2; Mayo Clinic, Rochester, Minnesota; 1ADMA Biologics, Boca Raton, Florida

Session: 271. Pediatric Respiratory Viral Infections
Saturday, October 5, 2019: 12:15 PM

Background: Respiratory syncytial virus (RSV) can cause severe lower respiratory tract infection (LRTI) in immunocompromised children. There is no standard effective treatment, though ribavirin (inhaled or oral), pooled human intravenous immunoglobulin (IVIG), and monoclonal anti-RSV antibody (palivizumab) have been described. RI-002 (ADMA Biologics Inc.) is a pooled human polyclonal IVIG that contains standardized levels of neutralizing anti-RSV antibodies. It was recently FDA-approved for prophylaxis in primary immunodeficiency patients and has been used as compassionate treatment for RSV LRTI in stem cell transplant patients.

Methods: Two children with T-cell lymphoblastic lymphoma, both undergoing delayed intensification chemotherapy, were diagnosed with RSV LRTI. They were both treated with RI-002 under an emergency FDA Investigational New Drug protocol.

Results: Patient 1, a 4-year-old boy, was admitted with fever, neutropenia and nasal congestion, and diagnosed with RSV infection on hospital day (HD) 5. On HD17, he was intubated for respiratory failure. IVIG, palivizumab, and daily oral ribavirin were administered. On HD18, he required high frequency oscillator ventilation, nitric oxide, and paralysis. He was given RI-002 (1.5 g/kg on HD20 and 0.75 g/kg on HD22). He was placed on veno-venous extracorporeal membrane oxygenation (ECMO) on HD23. RSV PCR crossing point (Cp) values trended higher, but remained positive (table). On HD33, RI-002 was re-dosed (0.75 g/kg). Pulmonary compliance and chest CTs improved (figure). On HD52, ECMO support was discontinued. He was discharged on HD68, and currently requires no respiratory support. Patient 2, a 5-year-old boy, was admitted with fever, neutropenia, nasal congestion, cough, and stridor and diagnosed with RSV infection (HD1). He required nasal cannula oxygen. IVIG and daily oral ribavirin were administered. He was given RI-002 (1.5 g/kg on HD3 and 0.75 g/kg on HD5). By HD5, he was afebrile; oxygen was discontinued. He was discharged HD6. Patient 2, a 5-year-old boy, was treated with RI-002 under an emergency FDA Investigational New Drug protocol.

Conclusion: Human polyclonal IVIG containing standardized levels of neutralizing anti-RSV antibodies may be useful in the treatment of RSV LRTI in immunocompromised children. Future studies on the role of RI-002 in treatment of RSV infection in immunocompromised children are warranted.

2631. Influenza-Associated Intensive Care Unit Hospitalizations and Deaths in Children, During 2010–2019 in Greece

Anastasia Andropoulou, Health Visitor1; Elisavet Mouratidou, RN, BSc2; Alexandra Vernardaki, BSc1; Kassiani Gkolfinopoulou, MPH, PhD3; Takis Panagiotopoulou, PhD3; Athanasios Kossyvakis, PhD3; Marta Extindari, MD, PhD4; Andreas Mentis, MD5; Anna Papa, MD, PhD5; Marta Theodoridou, MD, PhD7; Theano Georgakopoulou, MD, MPH, MSc6; National Public Health Organization, Athens, ND, Greece; 2Athens Medical School, National and Kapodistrian University of Athens, Athens, Attiki, Greece; 3National Public Health Organization, Athens, Attiki, Greece; 4National Public Health Organization, Athens, Attiki, Greece; 5National School of Public Health, Athens, Attiki, Greece; 6Hellenic Pasteur Institute, Athens, Attiki, Greece; School of Medicine, Aristotle University of Thessaloniki, Thessaloniki, Thessaloniki, Greece; 7National Public Health Organization, Athens, Attiki, Greece

Session: 271. Pediatric Respiratory Viral Infections
Saturday, October 5, 2019: 12:15 PM

Background: Influenza-associated deaths in children in Greece over the last 10 years. Severe disease occurred also in children with no comorbidities. Longitudinal clinico-epidemiological data should be considered in shaping the national immunization program.

Disclosures. All authors: No reported disclosures.

Table: Microbiology data and PCR Crossing Point (Cp) Values from Patient 1

| Hospital Day (HD) | RI-002 treatment | Specimen type | RSV PCR Result | RSV PCR Cp* | Viral Culture |
|------------------|-----------------|---------------|----------------|--------------|---------------|
| HD5              | BAL             | Positive      | n/a            | n/a          | n/a           |
| HD10             | BAL             | Positive      | 21.1           | RSV positive | n/a           |
| HD17             | BAL             | Positive      | 23.2           | RSV positive | n/a           |
| HD20             | 1.5kg           | Negative      | n/a            | n/a          | n/a           |
| HD22             | 1.75g/kg        | Negative      | n/a            | n/a          | n/a           |
| HD24             | BAL             | Positive      | 29             | No growth    | n/a           |
| HD29             | BAL             | Negative      | n/a            | n/a          | n/a           |
| HD29             | ETT aspirate    | Positive      | 33.6           | No growth    | n/a           |
| HD34             | ETT aspirate    | Positive      | 35.7           | No growth    | n/a           |
| HD37             | ETT aspirate    | Negative      | n/a            | n/a          | n/a           |
| HD37             | BAL             | Negative      | n/a            | n/a          | n/a           |

* PCR Cp values are a semi-quantitative determination of strength of positivity NP, nasopharyngeal; BAL, bronchoalveolar lavage; ETT, endotracheal; n/a, not available; Cp, crossing point

Disclosures. All authors: No reported disclosures.

2632. Cord Blood Vitamin D and Maternal Vaccination Status Associated with Decreased Laboratory Confirmed Influenza Infections in Infants

Kristina Betz, MD, PhD1; Matthew Fenichel, MSc2; Mark C. Steinhoff, MD1; Elizabeth P. Schlaudercker, MD, MPH1; Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio; 2Cincinnati Children's Hospital Medical Center, University of Cincinnati College of Medicine, Cincinnati, Ohio

Session: 271. Pediatric Respiratory Viral Infections
Saturday, October 5, 2019: 12:15 PM

Background: Maternal influenza vaccination has been demonstrated to reduce influenza infections in infants. Influenza infections generally peak along with episodes of infant respiratory illness with fever, every week for the first 6 months of life. If a respiratory illness with fever was reported, nasal swabs were obtained from the infant and tested with a commercial rapid influenza test. Infants with confirmed influenza disease were matched with four controls by birth month and sex, for a total of 84 controls. We measured 25-hydroxyvitamin D levels from cord blood in all cases and controls. A conditional logistic regression was performed to test the effect of vitamin D on the odds of laboratory confirmed influenza while controlling for birth weight, gestational age, crowding, number of siblings, and socioeconomic status score.

Results: A total of 21 infants had laboratory confirmed influenza disease. There were no significant differences in birth weight, crowding, family size, gestational age, socioeconomic status score, infant gender, and smokers in the home between cases and controls (Table 1). Frequency of maternal influenza vaccine was lower in cases when compared with controls (23.81% vs. 58.33%). Serum vitamin D was lower in cases than in controls (8.73 ± 3.34 vs. 10.67 ± 4.08, Table 2).

Conclusion: Both vitamin D levels and maternal vaccination status have medically relevant, and statistically significant, independent effects on the odds of infants contracting influenza. Although the vitamin D levels in the infants at birth were low, there was a significant association of lower levels at birth with an increased risk of influenza virus infection. Further study with a larger sample-size is needed to explore these effects.
2633. Influenza and Tdap Vaccination Coverage among Pregnant Women in the PREVAIL Cohort

Elizabeth P. Schlaudecker, MD, MPH1; Shannon Conrey, MS2; Brady J. Gelvin, BS2; Allison R. Cline, RN, BSN2; Emily A. DeFranco, DO, MS2; Angela P. Campbell, MD, MPH3; Alexandra Piasecki, MPH3; Lauren Beacham, MA3; Barbara Bardenheier, PhD, MPH, MA3; Daniel C. Payne, PhD, MSPH4; Ardythe L. Morrow, PhD1; Mary A. Staat, MD, MPH5; 1Cincinnati Children’s Hospital Medical Center, University of Cincinnati College of Medicine, Cincinnati, Ohio; 2University of Cincinnati College of Medicine, Cincinnati, Ohio; 3Centers for Disease Control and Prevention, Atlanta, Georgia; 4Centers for Disease Control and Prevention, Atlanta, Georgia, Atlanta, Georgia; 5Cincinnati Children’s Hospital Medical Center, University of Cincinnati College of Medicine, Cincinnati, Ohio

Session: 271. Pediatric Respiratory Viral Infections
Saturday, October 5, 2019: 12:15 PM

Background: The ACIP recommends influenza and Tdap vaccination during pregnancy to reduce the risk of influenza and pertussis in the mother and her infant. We assessed influenza and Tdap vaccination coverage and associated factors among pregnant women enrolled in PREVAIL, a prospective birth cohort study in Cincinnati, OH. We assessed sensitivity and specificity of self report for both vaccines against state registry, maternal healthcare provider, and workplace records.

Methods: We enrolled and interviewed 265 pregnant women regarding self-reported receipt of influenza and Tdap vaccines, and obtained vaccine records from registry, electronic medical record, provider, employer, or pharmacy. We grouped subjects by documented vaccination status and analyzed demographic variables and vaccine attitudes regarding efficacy, safety, and hesitancy using unadjusted Fisher exact tests. We analyzed sensitivity and specificity of maternal recall.

Results: We identified documentation of influenza and Tdap vaccine receipt during pregnancy in 172/265 (64.9%) and 238/265 (89.8%) of women, respectively (Figure 1); by self report, 177/265 (66.8%) reported receiving influenza and 221/265 (83.4%) Tdap vaccine. The two most common primary reasons cited for receiving influenza vaccine were "to protect my baby" (36.7%) and "to protect myself" (26%; Figure 2). Pregnant women were more likely to get Tdap vaccine if a healthcare worker recommended it (OR 5.4). Subjects were more likely to get influenza vaccine if they believed it was effective in preventing influenza in themselves (OR 9.0) or their babies (OR 8.1). While positive recall had a high concordance (95.2% for influenza and 93.4% for influenza and Tdap, respectively), 12.5% and 32.1% of mothers incorrectly recalled not receiving an influenza or Tdap vaccine, respectively, that was documented as received in the records (Figure 3).

Conclusion: We found high concordance between maternal recall and verification for both influenza and Tdap vaccines. In this single-site cohort of 265 women, self report was a reliable measure of vaccination status among pregnant women. Provider communication to pregnant women regarding effectiveness of influenza and Tdap vaccinations for themselves and their infants may lead to higher maternal vaccination rates.

Disclosures. All authors: No reported disclosures.