of age (VE 61%, 95% CI 14, 82). VE was 26% (95% CI 58, 65%) against serotype 3 and 67% (95% CI 11, 88%) against other PCV13-types (+6%). PCV13 was not effective against nonvaccine types.

Conclusion. PCV13 was effective in preventing IPD caused by PCV13 types when excluding type 3; no effectiveness was demonstrated against serotype 3.

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152. Protective Antibody Levels 7.5 Years After Primary Vaccination in Adolescents With a Recombinant, 4-Component, Meningococcal Serogroup B Vaccine (4CMenB) and Response to a Booster Dose in Adolescents and Young Adults: Phase IIIb Clinical Findings

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Session: 44. Adult and Adolescent Vaccines

Thursday, October 4, 2018: 10:30 AM

Background. 4CMenB has been shown to be immunogenic with an acceptable safety profile in infants and young adolescents. However, no data on long-term persistence of primary vaccination in adolescents and young adults up to 7.5 years following the primary vaccination in adolescence.

Methods. This phase 3b, open-label, extension study (NCT02446743) assessed the antibody persistence and booster response at 4 years (Canada and Australia, NCT01423084) or 7.5 years (Chile, NCT00866173) after primary vaccination with 4CMenB (following 0 + 1, 0 + 2, or 0 + 6-month schedules), compared with vaccine-naïve (VN), healthy controls. Chilean follow-on (FO) and VN participants aged 18–24 years received either a booster dose of 4CMenB 7.5 years postprimary series (Group FO, N = 147) or a first dose of 4CMenB (Group VN, N = 150). Immunogenicity was measured using human serum bactericidal antibody assay (hSBA) against antigen-specific strains. Immune response was evaluated 1 month postbooster and compared with VN controls at 1 month post first dose. Kinetics of antibody responses were measured at 7, and 30 days post vaccination. Safety was assessed.

Results. Antibody levels waned at 7.5 years postprimary vaccination in Group FO, but were higher than in Group VN at baseline, for all antigens except NHBA (Table). At 1 month postbooster/first dose, 93–100% (Group FO) and 62–93% (Group VN) of participants had hSBA titres ≥4; GMTs ranged between 41 and 1,951; 43) had higher anti-PT IgG levels at 1 M and 2 M NH SCN concentrations compared with newborns of women vaccinated in late third trimester (n = 47). 2.4 international units (IU)/mL vs. 1.9 IU/mL (P = 0.0073) and 2.3 IU/mL vs. 1.7 IU/mL (P = 0.0354), respectively, after adjustment for gestational age at birth. There was a negative association between later timing of vaccination in third trimester and anti-PT IgG levels achieved at 1 M, 1.5 M, 2 M and 3 M NH SCN (all P < 0.05). A positive association between increasing vaccination and delivery and anti-PT IgG levels achieved at 1 M, 0.5 M, 1.5 M, and 2 M NH SCN (all P < 0.02).

Conclusion. Vaccine persistence during early third trimester results in higher levels of high avidity antibodies compared with vaccination in late third trimester. High avidity antibodies may confer greater protection to the neonate supporting recommendations for vaccination at 28–32 WG vs. 33–36 WG.

Disclosures. All authors: No reported disclosures.

154. Diagnosis and Genotyping of Coxiella burnetii Causing Endocarditis in a Patient With Prosthetic Pulmonary Valve Replacement (PVR) Using Next-Generation Sequencing (NGS) of DNA

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Thursday, October 4, 2018: 10:30 AM

Background. Coxiella burnetii is a zoonotic pathogen transmitted to humans through inhalation of aerosolized infected droplet nuclei. Definitive diagnosis requires the presence of C. burnetii DNA in the blood of an infected host. This diagnosis can be challenging and time-consuming. A novel next-generation sequencing (NGS) assay on plasma cell-free DNA to facilitate rapid diagnosis and genotyping in a patient with C. burnetii CNE.

Methods. NGS was performed on plasma by Karius, Inc. (Redwood City, California). Human reads were removed and remaining sequences were aligned to a curated database of over 1,000 pathogens. Organisms present above a predefined significance threshold were reported. For C. burnetti strain-typing, alignments to different Coxiella strains in the pathogen database were compared by BLAST bit-score to determine the most closely related strain to the infecting organism. C. burnetti genotyope group was also determined by in silico analysis of polymorphic ORF deletion markers known to distinguish groups I–VI.

Results. Twenty-nine-year-old male with history of Tietzodrome of Fallot, multiorgan failure, and subsequent valve replacement (PVR) at 18 months of age. High fever and night sweats were admitted. Relevant history included travel in South and South East Asia, the use of a LivaNova 3T Heater-Cooler device during surgery (i.e., at risk for Mycobacterium chimaera), and drinking unpasteurized milk. Cardiac CT showed 2 pulmonary opacities concerning for septic emboli and echocardiography showed echodensity on pulmonic valve. Blood cultures were negative. NGS detected C. burnetti.
Within 48 hours of sample receipt, on the basis of these results, hydroxychloroquine and doxycycline were initiated with symptomatic improvement. Strain typing demonstrated highest relatedness to the ChuK, Q154 (group IV) strain typically seen in North America. Genotype group was independently confirmed by inference of a pattern of ORF deletion most similar to that in group IV (and highly related group VII). Serologic testing for C. burnetii confirmed the diagnosis. After 4 weeks of antibiotics, the patient underwent successful PVR with graft exchange.

Conclusion. NGS testing aided in diagnosis of C. burnetii CNE, enabling early targeted antimicrobial therapy. It also allowed inference of strain-level information, supporting further investigations regarding epidemiologic origins of this pathogen.

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155. Infective Endocarditis and Cardiac Valve Surgery During the Opioid Epidemic in North Carolina, 2007 to 2017
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Session: 45. Cool Findings in Bacteremia and Endocarditis
Thursday, October 4, 2018: 10:30 AM

Background. Infective endocarditis (IE) associated with drug use (DA-IE) is rising nationally. North Carolina (NC), a state hard-hit by the opioid epidemic, saw an over 12-fold increase in DA-IE from 2010 to 2015. Concerns about surgery exist due to the risk of ongoing drug use and re-infection after valve replacement. We evaluated trends, characteristics, and outcomes of valve surgery for DA-IE, compared with IE not associated with drug use (non-DA-IE), in NC.

Methods. We analyzed the NC Discharge Database, which includes administrative data from all hospital discharges in NC. Using International Classification of Diseases codes, we identified all persons ≥18 years of age with IE from July 1, 2007 to June 30, 2017. Hospitalizations were deemed DA-IE by a diagnosis code related to illicit drug use, dependence, poisoning or withdrawal (excluding marijuana), or Hepatitis C in a person born after 1965. All others were labeled non-DA-IE. Procedure codes were queried to identify cardiac valve surgery. Year-to-year trends in surgery for IE by drug-associated status were reported. Demographics, length of stay (LOS), charges, and disposition were compared among DA-IE and non-DA-IE.

Results. A total of 22,809 hospitalizations were coded for IE. Valve surgery occurred in 1,652. Of surgical hospitalizations, 17% overall and 42% in the final study year were DA-IE. Hospitalizations for DA-IE where surgery was done increased from <10 through 2012–2013 to 109 in 2016–2017 (figure). Compared with non-DA-IE, those undergoing surgery for DA-IE were younger (median age 33 vs. 56), female (47% vs. 33%), White (89% vs. 64%), uninsured (34% vs. 11%), insured by Medicaid (39% vs. 27%) and to be younger (median age 56 vs. 76), female (47% vs. 33%), White (89% vs. 64%), uninsured (34% vs. 11%), insured by Medicaid (39% vs. 27%) and to be younger (median age 56 vs. 76).

Conclusion. This novel, case-matched study confirms the increased number of patients with DA-IE who undergo valve surgery in NC. Further research is needed to understand the long-term implications of surgery performed for IE following DA-IE.

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157. Reducing Blood Culture Contamination Rates Through the Use of a Red Top Tube Discard
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Session: 45. Cool Findings in Bacteremia and Endocarditis
Thursday, October 4, 2018: 10:30 AM

Background. Septicemia is a major cause of death in the United States and accounts for up to $16.7 billion in annual health care expenses. Blood culture is the gold standard for laboratory diagnosis of bacteremia and resultant septicemia; however, false-positive blood cultures hinder the accurate determination of true bacteremia with often serious implications. The goal of this study was to determine the efficacy of collecting a 1 mL discard in a red tube prior to blood culture collection and to assess its effectiveness in reducing contamination rates in Hartford Hospital Emergency Department (HHEAD).

Methods. During the months of June to December 2016, there were a total of 13,765 blood cultures collected by the phlebotomy team using ChloraPrep (chlorhexidine) as the sole disinfecting agent. Blood cultures consisted of BD BACTEC plus Aerobic/F and BD BACTEC- Myco/TB/Anaerobic drawn at the same time and monitored on BD BACTEC FX instrument for 5 days. Prior to collecting blood cultures 1 mL of blood was collected in a red top tube and discarded. Monthly and overall contamination rates were then compared with those in which a red top discard tube was not used.

Results. During June to December 2016, there were a total of 9,576 blood cultures collected with a total of 178 contaminants and an overall contamination rate of 1.9%. During June to December 2017, there were a total of 9,133 blood cultures collected with a total of 73 contaminants and an overall contamination rate of 0.8%.

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