scores. Thirty (39%) women with antepartum depression had resolution of symptoms postpartum and no women developed incident depression in the postpartum period. There was a trend toward increased rates of antenatal depression among HIV-infected vs. uninfected women (69% vs. 57%, P = 0.13). Both depressed and nondepressed pregnant women experienced low rates of intrauterine fetal demise, intrauterine hypertension, and preterm delivery. However, women with depression had 3-fold higher incidence of intrauterine growth restriction on prenatal ultrasound (4.4% vs. 1.5%).

Conclusion. We found that the majority of pregnant women in our population experience some form of depression during pregnancy. Most women with antepartum depression experienced improvement in their mood postpartum, which contrasts with patterns of perinatal depression in developed countries. We are planning qualitative studies to understand the social contributors for antepartum depression in India, and to identify potential solutions.

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809. Osteitis Caused by Bacillus Calmette-Guerin Tokyo 172 Strain in Immunocompetent Patients
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Session: 70. Tuberculosis and Other Mycobacterial Infections
Thursday, October 4, 2018: 12:30 PM

Background. Immunization with BCG vaccine has been associated with local and systemic complications. Osteitis secondary to Mycobacterium bovis-BCG is a rare complication with frequency of 0.1/100,000 doses. Below we report a series of a third level cares hospital in Mexico City.

Methods. This is a retrospective, descriptive, and observational study of subjects diagnosed with TB at the National Institute of Pediatrics (INP) in Mexico City during the 2010–2018 period. Subjects under 18 years with skeletal TB and positive culture for M. bovis-BCG strain were included.

Results. From 2010 to 2018, 118 cases of TB were treated, from which 3 (2.5%) were osteitis secondary to M. bovis-BCG. Tokyo 172 strain, two male and one female. All three cases had BCG immunization at birth. The age at diagnosis was 1, 2, and 3 years, respectively. The most common symptoms were pain, malaise, and limping. Nine of injury were right proximal tubia, epiphysis of left distal femur, and left iloepubic eminency. Lytic lesions with periosteal reaction were reported in plain radiographs of all cases. The TST and COMBE studies were negative. Diagnosis was confirmed by biopsy with identification of M. bovis-BCG Tokyo 172 strain by Genotype. All strains were sensitive to rifampicin. The treatment given was INH, RIF, E, PZA, and Clarithromycin during 2 months of intensive phase followed by 7 months of maintenance phase with INH-RIF. A surgical approach was performed with curettage and graft placement in two cases. Tetrazoil nitro blue test and immunoglobulin levels were normal. Outcome was favorable in all three cases.

Conclusion. In Mexico the BCG vaccine is part of the national immunization program and is applied to 99% of newborns. This work is the first report in Mexico of osteitis secondary to M. bovis-BCG strain Tokyo 172. We suggest considering the diagnosis in patients with osteitis under 5 years of age with a history of BCG vaccination.

Disclosures. All authors: No reported disclosures.

810. Diagnosis of BCG Aortitis by Plasma Metagenomic Sequencing
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Session: 70. Tuberculosis and Other Mycobacterial Infections
Thursday, October 4, 2018: 12:30 PM

Background. The use of intra-vascular Bacille Calmette-Guerin (BCG) for bladder cancer can result in disseminated/endovascular BCG infection. The diagnosis of BCGosis in this setting is complicated by the risks of biopsy of an endovascular focus and the long duration of acid-fast bacilli (AFB) cultures.

Methods. A 68-year-old male with a history of hypertension, aortic aneurysm rupture, and the long duration of acid-fast bacilli (AFB) cultures.

Results. Plasma-based NGS of cell free DNA detected M. tuberculosis (Mtb) complex at 48 hours (within 28 hours of sample receipt). Within the first week, the majority of sequences aligned to M. bovis with five reads aligning uniquely to M. bovis. No reads aligned to the region of deletion 1 (RD1) deleted in BCG. Surgical AFB cultures were positive for Mtb complex by PCR probe at nine days; Mtb complex was recovered in culture at 19 days.

Conclusion. Plasma metagenomic sequencing can be used to rapidly diagnose BCG-associated endovascular infection.

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811. A Randomized Controlled Trial of Prednisolone vs. Interleukin 17 Inhibitor Secukinumab in the Management of Type 1 Lepra Reaction in Leprosy Patients
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Session: 70. Tuberculosis and Other Mycobacterial Infections
Thursday, October 4, 2018: 12:30 PM

Background. Leprosy is a chronic granulomatous disease caused by Mycobacterium leprae. Type I lepra reactions (TR) are delayed hypersensitivity (Type IV) reactions which if not treated promptly leads to disability affecting eyes, hands and feet. IL-17 A which is produced mainly by inflammatory T helper 17 cells is up regulated in patients of Lepra reaction. Conventionally oral corticosteroids steroids have been the mainstay in the management of Type 1 lepra reactions. This novel biologic drug is a targeted therapy which blocks the offending interleukin molecule without any serious adverse effects. We report the results of this randomized control study wherein an immuno-modulator biologic molecule has been safely used to treat an inflammatory reaction in a chronic infectious disease. Outcomes were measured using recurrence rate, a clinical severity score, quality of life, and adverse events.

Methods. Seventy-four patients with new TR were randomized to receive Secukinumab (a human IgG1 monoclonal antibody that binds to the protein interleukin (IL)-17A) or Prednisolone for 20 weeks. IL-17 A levels were correlated before and after the intervention.

Results. Recovery rates in skin signs was similar in both groups (92% vs. 87%). Improvements in nerve function both, new and old, sensory (57% vs. 48%) and motor (73% vs. 76%) loss were higher (but not significantly so) in the patients on Secukinumab. Recurrences rates of lepra reaction (25%) were high in both groups, and recurrences occurred significantly earlier (8 weeks) in patients on Secukinumab, who needed 10% more additional prednisolone. Serious major and minor adverse events rates were much lesser with Secukinumab as compared with Prednisolone alone. Both groups had a significant improvement in their quality of life after the study, measured by the Short form survey SF-36.

Conclusion. This is the first double-blind randomized control trial assessing Secukinumab, in the management of lepra reaction. It could be a safe alternative second-line drug for patients with leprosy reactions who are not improving with prednisolone or are experiencing adverse events related to prednisolone. IL-17A levels could be an important diagnostic marker for diagnosis and prognostic cases of Type 1 Lepra reaction, which if not treated in time can lead to irreversible nerve damage.

Disclosures. All authors: No reported disclosures.

812. Case-Control Trial to Evaluate the Cytokine Response to the Use of Capsule Thalidomide in Erythema Nodosum Leprosum in Leprosy Patients
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Session: 70. Tuberculosis and Other Mycobacterial Infections
Thursday, October 4, 2018: 12:30 PM

Background. Leprosy is a chronic granulomatous disease caused by Mycobacterium leprae. Type II lepra reaction or Erythema Nodosum Leposum is a
Type III hypersensitivity immune response during the chronic course of the illness. This immune response presents as systemic symptoms and neutrophilic leukocytosis, similar to sepsis. Capsule Thalidomide is considered the drug of choice, when it comes to the treatment of this acute immunological emergency. A rational study into the immunological markers involved in the pathogenesis of erythema nodosum leprosum and its successful resolution by Thalidomide should be helpful in early diagnosis, and prompt successful therapy. On the basis of previous studies, our aim was to find a correlation with interferon-γ, tumor necrosis factor-α, and CD-64 expression on activated circulating neutrophils during Type II lepra reaction and successful response to capsule Thalidomide.

Methods. This case-controlled study included one group of patients diagnosed to have leprosy and the other group was healthy controlled individuals with matched age, sex, and area of residence. All the patients with type II lepra reaction responded to Capsule Thalidomide clinically, and all the skin lesions resolved in 7–14 days. Blood samples and skin biopsy were subjected to histopathology, immunofluorescence assay, immunohistochemical staining, quantitative RT-PCR (reverse transcriptase-polymerase chain reaction), and flow cytometry.

Results. Interferon-γ and TNF-α are sensitive markers in diagnosing erythema nodosum lepromatous and CD-64 expression on activated circulating neutrophils is both a specific and sensitive marker in Type II lepra reaction. CD-64 expression also had a positive correlation with Thalidomide treatment and clinical response. High polymorphonuclear leukocyte infiltration was also observed.

Conclusion. CD-64 expression on circulating neutrophils is a potential early biomarker for diagnosing erythema nodosum lepromatous and can be used as a tool to assess thalidomide response. It is however not a good index to diagnose leprosy infection as it was specific for Type II lepra reaction. Interferon-γ and TNF-α are sensitive markers to screen for lepra reactions and this study showed no significant correlation with Thalidomide therapy.

Disclosures. All authors: No reported disclosures.

813. Combination of N-Acetyl-Cysteine With Clarithromycin Against Mycobacterium avium Infection Akayo Siaoruana, MD; Chukwunaya Chike, MBBS; Shaoyi He, MD; Kazuhiko Tateda, PhD, MD; 1Department of Microbiology and Infectious Diseases, Toho University School of Medicine, Tokyo, Japan Session: 70. Tuberculosis and Other Mycobacterial Infections Thursday, October 4, 2018: 12:30 PM

Background. N-Acetyl-cysteine (NAC) is widely used in patients with chronic pulmonary diseases. In previous studies, its antimicrobial and antibacterial effects have been reported. Among its effect in Mycobacteria, it has been mainly studied in Mycobacterium tuberculosis. Here, we examined whether NAC has antibiotic activity against M. avium.

Methods. The antimycobacterial effect of NAC was assessed in JCM 15430 M. avium strain infected A-549 (human lung epithelial cells) and MH-S (mouse alveolar macrophages). These cells were infected with M. avium at multiplicity of infection of 10 for 1 hours, washed and then cultivated for 5 days. Bacterial uptake was evaluated at 0 days and 5 days of cultivation. For the NAC treatment group, 5% FBS medium with 10 mM NAC was used as culture medium. We also tested its effect in combination with clarithromycin. In previous studies, M. avium-infected A-549 cells were infected intracellularly with M. avium, and were given NAC (400 mg/kg) or clarithromycin (100 mg/kg) or both by gavage daily for 6 days. On day 7 of infection, lungs were harvested and CFU, cytokines and antimicrobial peptides were measured.

Results. NAC treatment of M. avium-infected A-549 and MH-S resulted in a significant reduction of mycobacterial loads (P = 0.014 and P = 0.014). In vivo, NAC treatment resulted in a significant reduction of mycobacterial loads in the lungs of M. avium-infected mice (P = 0.007). When in combination with clarithromycin, we also observed additional reduction (vs. clarithromycin monotherapy; P = 0.001). Several antimicrobial peptides significantly increased when treated with NAC and clarithromycin combination therapy.

Conclusion. NAC exhibits potent anti-mycobacterial effects and may limit M. avium infection. In combination with clarithromycin, it showed an additive effect in reduction of mycobacterial loads. Interestingly, in our study, several antimicrobial peptides increased significantly which may be one of the possibility on how NAC is involved in antimycobacterial effects. These results indicate that NAC may be an additional option in treating M. avium-infected patients in future, along with its classical drug regimen containing clarithromycin.

Disclosures. All authors: No reported disclosures.

984. Maternal and Infant Factors Influencing Influenza Vaccination Among Young Children Born in Colorado From 2008 to 2016 Musheg Alishahi, MS; Lauren De Crescenzo, BA 2; and Suchitra Rao, MBBS 1 1Psychiatry, University of Colorado School of Medicine, Aurora, Colorado. 2Department of Epidemiology, University of Colorado School of Medicine, Aurora, Colorado. 3Pediatric Infectious Diseases, Hospital Medicine and Epidemiology, University of Colorado School of Medicine and Children's Hospital Colorado, Aurora, Colorado.

Session: 130. Adult and Pediatric Influenza Vaccine Friday, October 5, 2018: 12:30 PM

Background. Factors influencing influenza vaccination in the first 2 years of life are important to identify and target strategies to increase vaccination rates, since this group is at high risk of morbidity from influenza. The objectives of our study were to determine maternal and neonatal factors associated with influenza vaccination in the first 2 years of life.

Methods. We conducted a retrospective cohort study using linked data from the Colorado Birth Registry Database and the Colorado Immunization Information System (2008-2016). Our population was limited to singleton, first births with first varicella vaccination documented in the immunization registry. Our primary outcome was receipt of at least one influenza vaccination in children 52 years. Exploratory variables included maternal (number of prenatal visits, urban vs. rural residence) and infant factors (term birth, admission to neonatal intensive care unit [NICU] at birth). Multivariable logistic regression was used to assess the association between these factors and influenza vaccination.

Results. Among 126,763 births in the cohort, 50.2% were vaccinated against influenza by 2 years of age. Mothers of unvaccinated children were older (27 vs. 26 years), married (67.8% vs. 66.8%), and more likely to have at least some college education (25.4% vs. 24.1%). A higher proportion of infants admitted to the NICU or who received oxygen were unvaccinated compared with vaccinated (8.5% vs. 8.0% and 2.5 vs. 2.1, respectively), P = 0.001 for all. There were no differences between urban vs. rural residence. In adjusted/stratified analyses, an increase in pre-natal visits was associated with a decrease in early influenza vaccination (IR = 0.992, 95% CI 0.986–0.998, P = 0.0084 for Hispanic mothers and IR = 0.984, 95% CI 0.973–0.996, P = 0.0069 for others). Among 247,008 children, the unadjusted ROR showed no increase in LREs using the LAIV guideline: overall ROR was 0.999 (95% CI 0.998–0.999), P < 0.001 for all. There were no differences between urban vs. rural residence. No reported disclosures.

Conclusion. There were statistically significant differences in maternal and neonatal factors between vaccinated and vaccinated children with influenza in the first 2 years of life, but the differences were too small to be clinically significant. Ongoing studies are needed to devise strategies to target early influenza vaccination.

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985. Safety of Guidelines Recommending LAIV for Routine Use in Children and Adolescents With Asthma James Cordin, MD, MPH; Gabriela Vazquez-Renitez, PhD; Avadol Olsen, BS; Leslie Kuckler, MPH and Elyse Kharbanda, MD, MPH; Research, HealthPartners Institute, Minneapolis, Minnesota

Session: 130. Adult and Pediatric Influenza Vaccine Friday, October 5, 2018: 12:30 PM

Background. Asthma is the most common chronic medical condition in children. Prior observational studies of live attenuated influenza vaccine (LAIV) safety in asthmatic children have been limited due to confounding by indication, with LAIV restricted to patients with mild asthma. To minimize bias, we evaluated safety of LAIV in children with asthma using a natural experiment in which two medical groups, within a single health system, serving similar populations, differed in vaccination guidelines. Prior to 2010 both groups recommended inactivated influenza vaccine (IIV). Starting in 2010, one group recommended LAIV for children with asthma.

Methods. Asthmatic children age 2-18 years with visits to two large medical groups in the upper Midwest from 2007 to 2015 were identified and classified by severity and control using validated algorithms. Primary outcomes were lower respiratory events (LREs) in children BALA in 21 days and BALR in 21 days) and LAIV for children with asthma.

Results. A total of 7,959 observations from 4,824 unique asthmatic children were reviewed (9.8% female, 58.1% white, 41.1% African-American). Among 127,579 births in the cohort, 50.2% were vaccinated against influenza by 2 years of age. Mothers of unvaccinated children were older (27 vs. 26 years), married (67.8% vs. 66.8%), and more likely to have at least some college education (25.4% vs. 24.1%). A higher proportion of infants admitted to the NICU or who received oxygen were unvaccinated compared with vaccinated (8.5% vs. 8.0% and 2.5 vs. 2.1, respectively), P = 0.001 for all. There were no differences between urban vs. rural residence. No reported disclosures.

Conclusion. A guideline recommending LAIV rather than IIV for asthmatic children did not result in more LREs following vaccination in children age 2-18. Guidelines for influenza vaccination in asthmatic children should be based on effectiveness studies.

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986. Evaluation of Moderate-to-Severe Influenza Disease in Children 6 Months to 8 Years of Age in Colorado Suchitra Rao, MBBS 1; Nolly Isemb, PhD 2; Angela Moss, MS 3; Emad Yanni, MD, MSc; Rakhe Bekkar-Berkani, MD 4; Anne Schuind, MD 5; Bruce Innis, FDIDA 6; Jillian Cotter, MD 7; Rakesh Mistry, MD 8 and Edwin J. Asturias, MD 9; 1Pediatric Infectious Diseases, Hospital Medicine and Epidemiology, University of Colorado School of Medicine and Children's Hospital Colorado, Aurora, Colorado. 2Department of Epidemiology, Colorado School of Public Health, Aurora, Aurora, Colorado. 3Department of Epidemiology, Colorado School of Public Health, Aurora, Aurora, Colorado. 4Department of Epidemiology, Colorado School of Public Health, Aurora, Aurora, Colorado. 5Department of Epidemiology, Colorado School of Public Health, Aurora, Aurora, Colorado. 6Department of Epidemiology, Colorado School of Public Health, Aurora, Aurora, Colorado. 7Department of Epidemiology, Colorado School of Public Health, Aurora, Aurora, Colorado. 8Department of Medicine, Children's Hospital Colorado/University of Colorado School of Medicine, Aurora, Colorado. 9Department of Pediatrics, Children's Hospital Colorado/University of Colorado School of Medicine, Aurora, Colorado.