Type III hypersensitivity immune response during the chronic course of the illness. This immune response presents as systemic symptoms and neutrophil 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 sequelae expression 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 leprosum and CD-64 expression on active 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 leukocytes (PMNL) and erythrocytes in the lepra lesional skin were the highest in type II leprosy patients compared to healthy controls.

Conclusion. CD-64 expression on circulating neutrophils is a potential early biochemical marker for diagnosing erythema nodosum leprosum 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 Arayo Shiozawa, MD; Chuki Kajiwara, PhD; Yoshikazu Ishii, PhD and Kazuhiko Tateda, PhD, MD,1; Department 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-Acetylcysteine (NAC) is widely used in patients with chronic pulmonary diseases. In previous studies, this antimicrobial and antibacterial effect of NAC has 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 was added at 0 days and 5% FBS medium containing NAC (0.4 mg/ml) or clarithromycin (100 μg/ml) was added at 0 days and 5 days. Bacterial uptake was evaluated at 0 days and 5 days of cultivation. The antimycobacterial activity of NAC and clarithromycin was assessed by measuring the CFU (colony-forming units) and 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 combined with clarithromycin, we also observed an additive 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 addition 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 anti-mycobacterial effects. These results indicate that NAC may be an additional option in treating M. avium-infected patients in future, along with its classical drug regimens 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 Misheng Alishahi, MS1; Lauren De Crescenzo, BA2; and Sachitra Rao, MBBS1.

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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 from 2006-2016. Our primary outcome was receipt of at least one influenza vaccination in children ≤2 years of age. 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 ≤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 non-Hispanics). On average, infants born to mothers admitted to the NICU were admitted to the NICU were less likely to be vaccinated (IR = 0.915, 95% CI 0.873–0.959) against influenza by 2 years.

Conclusion. There were statistically significant differences in maternal and neonatal factors between vaccinated and unvaccinated 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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