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 cure by NAC treatment between 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, tumour necrosis factor-α, and CD-64 expression on activated circulating neutrophils during Type II lepra reaction and successful response to capsules 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 capsules 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 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 neutrophil infiltration was noted in patients with T. lepromatous leprosy.

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 Ayako Shiozawa, MD, Chulkai Kajiwara, PhD; Yoshikazu Ishii, PhD and Kazuhito Tateda, PhD, MD,1

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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 antimycobacterial 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 hour, 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. M. avium-infected A-549 cells were infected 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 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 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 regimens containing clarithromycin.

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986. Evaluation of Moderate-to-Severe Influenza Disease in Children 6 Months to 8 Years of Age in Colorado Suchith Rao, MBBS1; Molly E. Schuind, MD2; Angela Moss, MD2; Emily Yanni, MD2; M. Nordin, PhD2; Bekkat-Berkani, MD2; Anne Schuind, MD2; Bruce Innes, FDSA3; Jillian Cotter, MD4; Rakesh Mistry, MD5 and Edwin J. Asturias, MD5

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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 (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 (IRR = 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 Hispanic mothers.

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