Differences in subpopulations were seen. On exposure to cigarette smoke, counts were generally higher in ex-smokers, although no clear differences in baseline pro-inflammatory phenotype of monocytes or CD14++CD16++ (non-classical) were seen. Counts were generally higher in ex-smokers, although no clear differences in subpopulations were seen. On exposure to cigarette smoke there was a dose dependent rise in classical monocytes, which was more marked in DR3+ patients and never smokers.

Conclusions: CSE induces a pro-inflammatory phenotype of monocytes, and this occurs most in HLADR3+ individuals. This could be the mechanism behind lower FEV1 in DR3+ individuals.

REFERENCE

Severe asthma in children and adults

SPECIFIC FUNCTIONAL ANTIBODY DEFICIENCY IS ASSOCIATED WITH A REDUCTION LUNG FUNCTION IN THE SEVERE ASTHMA POPULATION

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Background: Haemophilus influenzae type B (Hib) and Streptococcus pneumoniae are leading causes of LRTI in the severe asthma population. Patients attending our regional severe asthma service have functional antibody levels tested against these two bacteria. Those with weakened immune systems may go on to require immunoglobulin therapy. The prevalence and impact of specific antibody deficiency within the severe asthma population has yet to be established.

Objective: We sought to quantify the number of patients who are deficient in antibodies against Hib and S pneumoniae within the severe asthma population, both at initial assessment and after vaccination.

Methods: Data from our regional clinic stored on a National Severe Asthma database were supplemented with information from the UHSM clinical results database, which contains blood antibody levels against Hib and S pneumoniae and lung physiology. Deficiency in Hib was defined as antibody levels of <0.15 µg/ml and for S pneumoniae, 6 out of 12 strains tested measuring >0.35 µg/ml. Only patients assessed after January 2008 were included. The prevalence of radiological abnormality, Aspergillus sensitisation, blood and sputum eosinophil counts, and lung function between severe asthma patients with antibody deficiency, and those with normal antibody levels were then compared.

Results: Among the patients tested for immunity to S pneumoniae (n=94) and Hib (n=97), 35% and 51% respectively were found to be deficient at initial assessment. In patients with baseline immune deficiency, 70% of those that received the Pneumovax vaccine had persistently low antibody levels against S pneumoniae, (p=0.03), and 20% who received Menitorix remained deficient in Hib antibodies. The mean post bronchodilator FEV1 for patients with normal S pneumoniae antibody levels was 82.4% predicted compared to 68.5% predicted in those who were deficient at initial assessment (p=0.018), and 65.3% predicted in patients with persistently low antibody levels even after vaccination (p=0.049). All other variables showed no difference between the groups.

Abstract S79 Figure 1

Abstract S79 Figure 2

Conclusion: This study demonstrates for the first time that antibody deficiency to S pneumoniae and Hib is common in patients with severe asthma, can persist despite vaccination in a significant proportion of individuals and is associated with worse lung function.

LOCALISATION OF THE SITE OF FIXED AIRFLOW OBSTRUCTION IN MODERATE TO SEVERE ASTHMA USING HYPERPOLARISED HELIUM-3 MRI

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Introduction and Objectives: Moderate and severe asthma are often associated with a degree of fixed airflow obstruction. We aimed to...