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039: Decreased levels of serum club cell 16 among non-seroatopic children with exercise-induced wheeze.

BACKGROUND

- Among urban children in 3 independent study cohorts, we have observed associations between exercise-induced wheeze (EIW) and urgent medical visits for asthma, independent of allergic sensitization and asthma severity. 1, 2
- Inhalation of environmental pollutants increases oxidative stress in airways and enhances exercise-induced bronchoconstriction responses. 3
- Club cell 16 (CC16), abundant in lung lining fluid and measurable in serum, has anti-oxidant and anti-inflammatory roles, and oxidant-rich pollutants decrease CC16. 4

METHODS

- For the NYC Neighborhood Asthma and Allergy Study, asthmatic (case) and non-asthmatic (control) 7-8 year-old children living among NYC neighborhoods with higher and lower asthma prevalence were recruited (n=347, Figure 1)

RESULTS

- CC16 serum concentrations were not statistically significantly different between children with and without asthma symptoms or seroatopy (Figure 1).
- Overall, there was a positive association between CC16 and FEV1/FVC, however, this association was observed among seroatopic children (Figure 2).
- Among the children with asthma symptoms, in models adjusting for sex, race, Hispanic ethnicity, maternal asthma and environmental tobacco smoke, CC16 was inversely associated with exercise-induced wheeze among non-seroatopic children (Figure 3).
- CC16 was not different (P>0.6) among children with more vs. fewer asthma symptoms (i.e., increased severity).

CONCLUSIONS

Among non-seroatopic children with asthma symptoms living in an urban environment, CC16 levels were lower among children with EIW, but were not associated with asthma severity, potentially suggesting a role for a decreased oxidative stress response in non-allergic pathways to EIW.

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