

Total Serum Immunoglobulin E is Higher in African than European American Children with Food Allergy

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Abstract

Background: The effect of race, age, sex, atopy, environmental exposures, and social determinants of health on total serum immunoglobulin E (IgE) has not been examined in children with food allergy. **Method:** We conducted a cross-sectional analysis with univariable and multivariable linear mixed effect models of data from 398 African American and European American children 0-12 years with allergist-diagnosed food allergy from the multi-center, observational cohort FORWARD; total serum IgE in kU/L was the primary outcome measure. **Results:** Total serum IgE positively associated with African American race ($p < .0001$), older age ($p < .0001$), male sex ($p = .0142$), lower household income ($p = .0051$), lower parent/caregiver education ($p = .0051$), allergic rhinitis ($p < .0001$), asthma ($p < .0001$), eczema ($p = .0240$), and a higher number of food allergies ($p < .0001$), but not tobacco smoke exposure. After covariate adjustment in multivariable analysis, total serum IgE remained higher in African American than European American ($p < .0001$), older than younger ($p < .0001$), and male than female children and in children with allergic rhinitis ($p = .0083$), asthma ($p < .0001$), eczema ($p = .0140$), and a higher number of food allergies ($p < .0001$). **Conclusions:** We provide foundational data that total serum IgE varies by race in children with food allergy; values were higher in African American than European American children, independent of atopic status. These findings call attention to the need to establish race-dependent values of total serum IgE for diagnostic and therapeutic purposes.

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