RESULTS. Total IgE was associated with increased asthma-severity score, decreased forced expiratory volume in 1 second (FEV$_1$) (mean IgE with FEV$_1$ < 80% predicted: 812; mean IgE with FEV$_1$ > 80%: 449), and risk of hospital admission (mean IgE with hospitalization in last year: 726; no hospitalization: 392). Increasing skin-prick–test reactivity was associated with increased risk of hospital admission (mean sum of SPT wheals with hospitalization in last year: 12.1 mm; no hospitalization: 6.5 mm).

CONCLUSIONS. In children with asthma, increasing atopy is associated with increasing asthma severity.

REVIEWER COMMENTS. The majority of children with asthma have allergy, and the more allergy they have, the worse their asthma is. This is almost certainly a causal relationship; not surprisingly, inhaling things to which you are allergic can worsen your asthma. This reinforces the importance of assessing the allergic status of all children allergic can worsen your asthma. This reinforces the importance of assessing the allergic status of all children with asthma and reducing the exposure for those whose allergies are amenable to environmental control (dust mites, furry pets, mold, and cockroach).

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John M. Kelso, MD
San Diego, CA

β2-Adrenoceptor Polymorphisms and Asthma From Childhood to Middle Age in the British 1958 Birth Cohort: A Genetic Association Study

PURPOSE OF THE STUDY. To determine if functionally relevant polymorphisms in the β2-adrenoceptor gene (ADRB2) could predict prognosis in childhood asthma and determine long-term asthma prevalence.

STUDY POPULATION. Participants of a previously studied United Kingdom birth cohort (N = 8018) that had been followed to 35 years were followed for an additional 10 years. The participants were identified before the age of 16.

METHODS. Parental interviews were conducted at ages 7, 11, and 16 years followed by patient interviews at ages 23, 33, and 42 years regarding history of wheezing and asthma. Those with a childhood history of wheezing had spirometry performed at age 34 to 35, and repeated at age 44 to 45. DNA blood samples were also obtained at ages 44 to 45. The variants in the coding region selected for genotyping were Arg16Gly, Gln27Glu, and Thr164Ile. A separate population of severely asthmatic subjects was recruited to search for potential novel polymorphisms within the ADRB2 gene. The effect of ADRB2 variants on the prevalence and severity of asthma and/or wheezing in childhood (7 years old) and adulthood (at 42 years old) and the persistence of wheezing illness from childhood (age 0–16 years) into adulthood (42 years old) were studied.

RESULTS. No single-nucleotide polymorphism was associated with lifetime onset of asthma or onset of asthma during any specific age range during childhood or adulthood. In comparing the frequency and prevalence of the 3 genotypic variants to the prognosis of children with wheeze or asthma, asthma persistence was associated with both the Arg16 and Gln27 alleles. The association with asthma prognosis could not be related to allergy. No significant associations were found with spirometry results and the polymorphisms. No new coding variants were discovered. Meta-analyses of previously published studies, together with the data from this study, showed that the previously described associations of the Gln27Glu and Arg16Gly variants with either asthma or severity, in both children and adults, were lost by inclusion of the results of this study.

CONCLUSIONS. The Arg16 and Gln27 polymorphisms may have a small effect on prognosis of wheezing in childhood with persistent asthma and/or wheezing. However, asthma prevalence in the British population was not related to any β2-adrenoceptor polymorphisms.

REVIEWER COMMENTS. Although previous studies have focused on correlating genotypic determinations in position 16 and 27 of ADRB2 with asthma severity, this unique birth-cohort study examined these genotypic associations with asthma prevalence and prognosis. The small prognostic effect of the Arg16 and Gln27 polymorphisms (being more common in those with persistent wheezing or asthma) seen in this study needs to be confirmed by additional studies. If confirmed, one could genotypically identify children with asthma who are more likely to have persistence of symptoms. In addition, one could determine if long-term asthma outcomes after early and persistent therapeutic interventions in children were genotype related.

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Saba Sharif, MD
Michael S. Kaplan, MD
Los Angeles, CA

Endotoxin Exposure Is a Risk Factor for Asthma: The National Survey of Endotoxin in United States Housing

PURPOSE OF THE STUDY. Studies have shown that endotoxin exposure associated with living in farm environments correlates with protection from atopy and asthma. Other studies offer conflicting data. The authors considered the possibility that regional sampling within the United States might explain such discrepancies.
Endotoxin Exposure Is a Risk Factor for Asthma: The National Survey of Endotoxin in United States Housing
Ivan N. Chinn and Larry W. Williams
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