nonpharmacologic therapeutic strategy in obese adolescents who have asthma.

**REVIEWER COMMENTS.** Asthma and obesity are 2 chronic conditions that are becoming more prevalent in children today. Moreover, there is often a direct relationship between the 2 factors; increased BMI is associated with dose-dependent increases in asthma incidence and severity. The authors were able to limit their study subjects to obese prepubertal children, providing a clearer picture of how emphasizing a normocaloric diet not only can contribute to a decreased BMI but also to improved AR-QoL. Although many allergy practices have incorporated asthma educational strategies at diagnosis and follow-up, perhaps it is time to also include standardized nutritional recommendations. Encouraging our youngest patients with asthma to maintain a normal BMI may not only help reduce exacerbations and potential for steroid adverse effects but also contribute to optimal lung development during this critical growth period.

**RESULTS.** After adjusting for age, race, gender, preterm birth, family history of asthma, diagnosis of eczema, and sample source, percent methylation of the ADRB2 promoter showed a strong inverse association with dyspnea (odds ratio: 0.2; \( P = .002 \)). There was no evidence of allele-specific differences in methylation.

**CONCLUSIONS.** This study is the first showing increased methylation at the ADRB2 gene being inversely associated with dyspnea, contributing to an improved asthma phenotype.

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**β-2 Adrenergic Receptor Gene Methylation Is Associated With Decreased Asthma Severity in Inner-City Schoolchildren: Asthma and Rhinitis**


**PURPOSE OF THE STUDY.** The β2-adrenergic receptor (B2AR) is the major target of β-agonist bronchodilators. The gene encoding the B2AR (ADRB2) has been mapped to chromosome 5q31-33, a region identified as a susceptibility locus for asthma or atopy. Epigenetic changes are heritable changes in gene expression, not encoded by DNA sequence changes (eg, methylation of cytosine-phosphate guanine [CpG] islands within regulatory regions of DNA). A variably methylated CpG island overlaps ADRB2. The purpose of this study was to determine the effects of methylation on asthma symptoms, morbidity, and lung function.

**STUDY POPULATION.** This study was nested within the SICAS (School Inner-City Asthma Study) and involved children who had a physician’s diagnosis of asthma within the past 12 months.

**METHODS.** DNA was extracted from saliva- and blood-derived samples. CpG sites were selected from the ADRB2 CpG island promoter region. DNA methylation assays were performed by staff blinded to the study. Methylation profiles for each locus represent a combination of saliva and blood sources. Caregivers completed questionnaires about asthma symptoms and rescue medication use within the past 4 weeks, as well as unscheduled health care visits and school absences related to asthma in the past 12 months. Subjects underwent prebronchodilator and postbronchodilator spirometry.

**RESULTS.** There was no evidence of allele-specific differences in methylation.
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Girish Vitalpur

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