Association of Maternal Anti-HLA Class II Antibodies With Protection From Allergy in Offspring


PURPOSE OF THE STUDY. The goal of this study was to determine if maternal production of anti-HLA antibodies arising from mismatch between mother and fetus is associated with allergic outcomes at 8 years of age. Previous studies have suggested that the prevalence of atopy is lower in children of higher birth order. Higher numbers of pregnancies are associated with increased antibodies against paternal HLA antigens and maternal interferon-γ production (Th1) in response to fetal cells. The authors postulated that the raised levels of interferon-γ secondary to HLA mismatch may be another factor associated with lower risk of allergic disease.

STUDY POPULATION. A total of 269 maternal blood samples from the Asthma in Ashford Study (Ashford, Kent, UK) were analyzed for anti-HLA antibodies. Retrospective anti-HLA antibody analysis was restricted to mothers who had no additional births in the 4-year interval between birth of the index child and collection of the blood sample. Parity at the time of birth of the index child ranged from 0 to >4.

METHODS. Maternal sera were tested for antibodies to HLA class I and II molecules. Associations between the presence or absence of maternal anti-HLA antibodies and allergic outcomes at age 8 years were made by using χ² tests. Logistic regression was used to investigate the association between maternal HLA antibodies and birth order with the child’s allergic status. Skin prick testing to pollen mixture, Dermatophagoides pteronyssinus, and cat fur were conducted on the mothers during pregnancy and on children at age 8 years. Allergic outcomes in children were measured by using questionnaires and results of skin prick testing.

RESULTS. The detection of maternal anti-HLA class II antibodies was associated with less positivity to allergens on skin prick testing and less seasonal rhinitis in children at age 8 years. Nonatopic children had a higher birth order and increased presence of maternal anti-HLA class II antibodies. Atopic children did not have a statistically significant difference in maternal HLA antibodies when analyzed for birth order.

CONCLUSIONS. Maternal anti-HLA class II antibodies are associated with birth order and increased protection from allergy in offspring in nonatopic children. Increasing parity-related Th1 cytokine maternal immune responses may contribute to the birth order effect regardless of maternal atopic status.

Prevalence of Allergic Disease in Foreign-Born American Children


PURPOSE OF THE STUDY. The goal of this study was to determine whether the prevalence of allergic diseases is lower in foreign-born Americans and if prevalence increases with prolonged residence in the United States.

STUDY POPULATION. Data were collected for 91,642 children ages 0 to 17 years in the 2007–2008 National Survey of Children’s Health. A total of 79,667 participants were analyzed.

METHODS. Random telephone numbers were selected for administration of the questionnaire, which was conducted in English, Spanish, and 4 Asian languages (Korean, Mandarin, Cantonese, and Vietnamese).

RESULTS. Children born outside the United States compared with those born within the United States had significantly lower prevalence of allergic disorders (20.3% vs 34.5%); logistic regression odds ratio [OR]: 0.48 [95% confidence interval (CI): 0.38–0.61]; P < .001). Among children born outside the United States, children with foreign-born parents had significantly lower odds of atopic disease than those with US-born parents (18.2% vs 33.4%); logistic regression OR: 0.45 [95% CI: 0.25–0.78]; P = .005). Furthermore, there was an additive effect in which children of 2 foreign-born parents had a lower prevalence of allergic disease than those with 1 foreign-born parent. Among foreign-born children, children who lived in the United States for >10 years, compared with those who resided in the United States for only 0 to 2 years, had significantly higher odds of
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