

677 Different Birth Month Pattern According to the Presence of Concomitant Sensitization to Other Allergen(s) in House Dust Mite-Sensitive Asthmatic Children

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RATIONALE: We investigated whether birth month patterns differ for asthmatic patients sensitized only to HDMs and for those sensitized to HDMs and other allergen(s).

METHODS: Among 2,225 patients with asthma, aged 10-16 years, 1,642 sensitized to HDMs were identified by skin prick testing. This group was composed of patients sensitized only to HDMs (n=715) and patients sensitized to HDMs and other allergen(s) (n=927). The birth month distributions of the group of HDMs-sensitive asthmatics or its subgroups were compared with that of a reference population. Using the number of expected patients as reference, the relative risks (RRs) of a given birth month were calculated.

RESULTS: A significant difference in birth month distribution was observed for HDMs-sensitive asthmatics ($\chi^2=23.6$, $P=0.015$), with higher rates of birth in August (RR : 1.21, 95% Confidence Interval : 1.04-1.40) and September (1.22, 1.05-1.41). When the two subgroups were analyzed separately, significantly more births were noted in August (1.34, 1.06-1.71) and September (1.34, 1.05-1.70) for those sensitized only to HDMs, whereas no such birth month preference was observed for those sensitized to HDMs and other allergen(s).

CONCLUSIONS: HDMs-positive asthmatics showed a greater proportion of births in August and September, which correspond to high HDM exposure. However, this birth month pattern was evident in asthmatics sensitive only to HDMs, but was not observed in those sensitive to HDMs and other allergen(s), suggesting that exposure to high quantities of HDM allergen in the first few months of life is relatively more important in the former group.

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678 Children Who Wheeze With Respiratory Syncytial Virus (RSV) in the First Year of Life Are More Likely to Have a Food Sensitization

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RATIONALE: It is well known that young children wheeze with viral infection. To determine factors that make children who wheeze with a viral infection different from those who never wheeze in the first year of life, we analyzed a cohort of 275 children at high risk for developing atopy.

METHODS: Nasal lavage was performed 1700 times on children, birth to 12 months of life, to isolate viruses at both symptomatic and scheduled visits. We compared children who wheezed with respiratory syncytial virus (RSV) and rhinovirus (RV) to those who did not wheeze with these infections. The groups of children were analyzed according to sixteen risk factors: number of siblings, parental asthma/allergy, IgE level, positive food RAST (egg, milk, peanut and soybean), positive aeroallergen RAST, atopic dermatitis, blood eosinophils, furred pets in home, breastfeeding, birth weight, and endotoxin exposure.

RESULTS: Children who wheezed with RSV infection in the first year of life were more likely to have mothers with asthma (50% vs. 34%, $p=0.07$) and to have a positive RAST to food (32% vs. 18%, $p=0.08$), compared to the children who did not wheeze. The remaining risk factors were not significantly associated with RSV-induced wheezing. Additionally, none of the potential risk factors were significantly associated with RV-induced wheezing.

CONCLUSION: These data suggest that children who wheeze with RSV are more likely to be sensitized to foods in early life and to have a family

history of maternal asthma, raising the possibility of a linkage between immune response to allergens and viruses in early childhood.

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679 Hormone Replacement Therapy and Asthma Incidence in Menopausal Women From the Third National Health and Nutrition Examination Survey (NHANES III, 1988-1994)

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RATIONALE: The relation between hormone replacement therapy (HRT) and asthma incidence in menopausal women has been addressed by few studies, with equivocal results. To our knowledge, this important issue has not been addressed in a population representative of menopausal women in the US.

METHODS: Data were obtained from NHANES III, a nationally-representative cross-sectional sample of the U.S. population conducted from 1988 to 1994. Incidence rates of asthma were calculated for menopausal women who had never or ever been exposed to HRT. Cox proportional hazards regression was used to model the relationship between HRT exposure and asthma incidence, adjusting for race-ethnicity, smoking, age at menopause, and urban residence.

RESULTS: Among 2,894 menopausal women included in the analysis, 997 (33.8%) had been exposed to HRT and 97 (3.35%) developed asthma after menopause. The incidence rates of asthma among unexposed and exposed women in the sample population were 1.54 per 1000 person-years and 2.37 per 1000 person-years, respectively (rate ratio 1.54, 95% CI 1.24, 1.91). In analyses weighted to represent menopausal women in the US population, the adjusted hazard ratio for asthma comparing HRT exposed and unexposed women was 1.88 (95% CI, 1.06, 3.33).

CONCLUSIONS: We found that menopausal women who have ever taken HRT are more likely to develop asthma than women who have never taken HRT. The clinical relevance of these findings is highlighted by the possibility that a large percentage of post-menopausal women may be on HRT.

680 Emergency Department Visits for Children With Asthma Exacerbations Living in Locations With Different Climates

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RATIONALE: To examine seasonal variations in emergency department (ED) visits for asthma among school-aged children living in two different climates, Charlottesville, Virginia, and Tucson, Arizona over a four year period

METHODS: Hospital billing databases (January 1998 - December 2001) were used to determine the number of children seen in the ED's in Charlottesville and Tucson. Children (6-18 years of age) seen in the ED with the diagnosis of asthma were included (ICD-9 codes 493.00, 493.01, 493.02, 493.90, 493.91, 493.92).

RESULTS: In Charlottesville, 10% (70/681) of the ER visits for asthma occurred in July and August followed by a significant increase in ER visits in September and October when 27% (184/681) of the children were treated, $p < 0.001$. In Tucson, 5% (59/978) of the ED visits for asthma occurred in June and July, followed by a broader peak of visits from September through December when 46% (452/978) were treated (peak month, November). The same seasonal patterns, respectively, were observed for asthma admissions to hospitals in the state of Virginia and in Yuma, Arizona.

CONCLUSIONS: A peak in ED visits for asthma among school-aged children was observed in the fall in Charlottesville (September and October). An extended peak (September through December, but highest in November) was observed in Tucson where the climate is more arid. Further examination of seasonal trends may lead to a better understanding of the etiology of exacerbations and allow physicians to monitor and treat children with asthma more effectively during seasons when they are more likely to have an attack.

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