critical developmental pathways of the lung predisposing these children to wheezing and asthma. ETS also appears to be important in childhood wheezing (probably asthma), but less significant compared with in utero exposure.

The main limitation of this study results from the use of questionnaires and reliance on the retrospective recall of parents for data collection. Exposure to tobacco smoking was assessed through questionnaire responses and not validated by more objective measurements such as cotinine levels. The study lacks information on the actual duration and intensity of exposure to tobacco smoke, because children and parents may have altered their time-activity pattern to avoid exposure to tobacco smoke. The study also lacks information on confounding factors such as maternal nutritional status and alcohol or other toxic substance intake during pregnancy. Although one could also argue that questionnaire data collections are prone to errors in reporting, given the stigma associated with smoking, parents are more likely to underreport and bias the data toward the null hypothesis.

William Lee, MD
Stanley Galant, MD
Orange, CA

ENVIRONMENTAL TOBACCO SMOKE EXPOSURE DURING CHILDHOOD IS ASSOCIATED WITH INCREASED PREVALENCE OF ASTHMA IN ADULTS


Purpose of the Study. This study was conducted to determine if environmental tobacco smoke (ETS) exposure during childhood had an impact on the prevalence of asthma in adults.

Study Population. A random sample of 8008 residents aged 15 to 69 of Orebro, Sweden (age matched from a total population of 80 569).

Methods. A questionnaire was sent to the randomly selected study group during the winter from 1995–1996. It included questions about respiratory symptoms and disease, use of asthma drugs, symptoms with various exposures, and questions about smoking history, occupation, and family history of respiratory diseases. They were also asked about childhood ETS exposure with the question, “Do or did any of your parents/relatives smoke at home when you grew up?” Current and former smokers were excluded from the evaluation of effects of childhood ETS exposure on asthma because of the confounding effects of active smoking on respiratory disease.

Results. The questionnaire return rate was 84%. The total sample included 3566 never-smokers (52.8%), 1676 smokers (24.9%), and 1257 ex-smokers (18.7%); 243 did not respond to the question. Subjects 30 to 49 years old were most likely to have childhood ETS exposure and those that had ETS exposure were significantly more likely to be ever-smokers (54.5%) versus those without childhood ETS exposure (33.8%). In subjects with childhood ETS exposure, almost all airway-related symptoms were more prevalent compared with nonexposed subjects. Subjects with physician-diagnosed asthma were significantly more likely to have had childhood ETS exposure (7.6% asthma prevalence) versus the nonexposed group (5.8% asthma prevalence). The difference in asthma prevalence between ETS exposed and nonexposed subjects was most pronounced in the younger age group (age: 15–39), 8.8% prevalence for exposed versus 6.3% nonexposed. Subjects aged 15 to 19 with ETS exposure were more likely to be smokers themselves (36.9%) versus nonexposed (13.1% smokers). ETS exposure was a significant risk factor for physician-diagnosed asthma (odds ratio [OR]: 1.82), breathing difficulties with exercise (OR: 1.45), breathing difficulties from cigarette smoke (OR: 1.25), and breathing difficulties from pets (OR: 1.41).

Conclusions. Childhood ETS exposure increases the likelihood of asthma in adulthood. The risk of an individual to take up smoking is increased by 60% if they had childhood ETS exposure.

Reviewer’s Comments. Childhood ETS exposure was strongly associated with asthma in nonsmoking adults. This was especially true of nonsmoking adults without a family history of asthma. The authors note the limitations of this study in that details of the ETS exposure (duration and amount) were not obtained and possible bias issues that asthmatics may be more likely to report childhood ETS exposure than nonasthmatics. This article adds to the existing literature demonstrating the detrimental effects of childhood ETS exposure. It should again encourage us as child advocates to continue to address this important issue with our patients and their families.

Mary Beth Bollinger, DO
Baltimore, MD

RESIDENTIAL EXPOSURES ASSOCIATED WITH ASTHMA IN US CHILDREN


Objective. To determine the risks associated with residential exposures for childhood asthma.

Study Population. Participants included 8257 children <6 years old who were enrolled in the Third National Health and Nutrition Examination Survey. This was a survey of the health and nutritional status of children and adults in the United States.

Methods. The study was a cross-sectional survey that was conducted from 1988 to 1994. The main outcome measure was doctor-diagnosed asthma, as reported by the parents.

Results. Six percent of children in the survey were reported by their parents to have doctor-diagnosed asthma. The prevalence of asthma was higher among boys (6.7%) than girls (5.1%) and among black children (8.9%) compared with white children (5.2%). Risk factors for doctor-diagnosed asthma included a family history of atopy (odds ratio [OR]: 2.2), child’s history of allergy to a pet (OR: 24.2), exposure to environmental tobacco smoke (OR: 1.8), use of gas stove or oven for heat (OR: 1.8), and the presence of a dog in the household (OR: 1.6). The population attributable risk of ≥1 residential exposure for doctor-diagnosed asthma in US children <6 years old was 19.2%, or an estimated 533 000 excess cases, while a positive family history of atopy accounted for 300 000. The attributable cost of asthma as a result of these residential exposures for children <6 years old was $402 million annually.

Conclusion. The elimination of these identified residential risk factors could result in a 39% decline in doctor-diagnosed asthma in US children <6 years old.

Reviewer’s Comments. There has been a dramatic increase in asthma prevalence in the past 20 to 30 years. Although many factors certainly contributed to this increase, this study suggests that specific exposures in the homes of our patients may play a major role. Please note also that the presence of a dog in this study has a deleterious effect, contrary to the finding in the next study. The answer to the question of indoor pets is still far from clear,
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Mary Beth Bollinger
Pediatrics 2002;110:446

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