STUDY POPULATION. This population-based cohort included 5619 seven-year-old children in grades 1 and 2 recruited from a random sample of 283 public schools in the greater Toronto area.

METHODS. Cross-sectional data were collected on demographic characteristics, family history of atopy, smoke exposure, and outcome information until age 6 or 7 years by using validated questionnaires completed by a parent or guardian for all 5619 children. Further detailed longitudinal exposure data were obtained via telephone survey on a randomly selected case-control subset of 1497 children, one-half of whom had a reported history of asthma or wheezing. Statistical methods used to analyze associations included Cox proportional and discrete-time hazard survival analyses.

RESULTS. Increased risk of asthma development was associated with maternal smoking or home secondhand smoke exposure during pregnancy and first year of life, male gender, preterm birth, and maternal asthma. Breastfeeding at least 6 months conferred a protective effect. When adjusting for the aforementioned factors, maternal smoking or secondhand smoke exposure during pregnancy was associated with a 30% increase in adjusted hazard of childhood asthma development. This association persisted for secondhand smoke exposure alone during pregnancy as well as after adjusting for secondhand smoke exposure during the first year of life and for exposure from birth to 7 years.

CONCLUSIONS. The results of this study suggest that there is an increased risk of developing childhood asthma with maternal secondhand smoke exposure during pregnancy, regardless of the mother’s active smoking status during that time.

REVIEWER COMMENTS. This study is the first to evaluate the association between maternal secondhand smoke exposure during pregnancy and childhood asthma development. Previous studies evaluated maternal smoking status during pregnancy, and others assessed early-life exposures after birth. Such findings highlight the need for smoking cessation education not only for pregnant mothers but for all smokers in the home.


Justin M. Skripak, MD
Oradell, NJ

Persistent Effects of Maternal Smoking During Pregnancy on Lung Function and Asthma in Adolescents

PURPOSE OF THE STUDY. The study was conducted to determine if the negative effects of maternal smoking during pregnancy on respiratory health persist into adolescence and, if so, to identify a mechanism.

STUDY POPULATION. The study population included 1129 Australian children, age 14 years, seen for one of multiple scheduled follow-up visits as part of a birth cohort study.

METHODS. Clinical data were collected on current asthma status; serum was collected for total and allergen-specific IgE measurements and for cytokine measurements; and urine was collected for prostaglandin F2α and eosinophil protein X measurements. Prenatal maternal smoking was determined by using an antenatal questionnaire for all participants and with urine cotinine measurements in some participants.

RESULTS. Prenatal exposure to maternal smoking was reported in 21%, and current smoke exposure was reported in 8%. Maternal smoking in pregnancy resulted in a significantly increased risk for current asthma, current wheeze, exercise-induced wheeze, and forced expiratory volume in 1 second/forced vital capacity <80%. However, there was no increased risk for atopy, current asthma medication use, or bronchial hyperresponsiveness. These associations were not altered when adjustments were made for various factors, including current lung function, specific IgE level, and cytokine and inflammatory markers.

CONCLUSIONS. Maternal smoking during pregnancy resulted in increased risk of asthma and wheezing at age 14 years. This increased risk was not due to increased atopic sensitization or reduced lung function at this age.

REVIEWER COMMENTS. This study is novel in that it assesses the effects of maternal smoking during the prenatal period on asthma and wheezing during adolescence. The findings suggest that prenatal counseling regarding smoking can be used to assist in the primary prevention of asthma.


Relationship of Secondhand Smoke and Infant Lower Respiratory Tract Infection Severity by Familial Atopy Status

PURPOSE OF THE STUDY. The goal of this study was to establish atopic predisposition as a predictive factor to lower respiratory tract infection severity in infants with second-hand smoke (SHS) exposure.

STUDY POPULATION. Study patients were 451 mother–infant pairs enrolled in TCRI (Tennessee Children’s Respiratory
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