Approximately one-third of children reported asthma symptoms and the need for asthma medications in the previous 2 months at the follow-up visit. None reported smoking. Being overweight correlated with forced expiratory volume in 1 second and/or forced vital capacity and the IOS indices (R5 and area under reactance), at the follow-up visit but did not correlate with the preschool urinary cotinine levels. However, preschool urinary cotinine levels did significantly correlate with increased FeNO scores, blood eosinophils, and R5 and decreased reactance (by 5) at the follow-up. No significant correlation was seen with forced expiratory volume in 1 second or methacholine challenge.

CONCLUSIONS: Early tobacco smoke exposure is linked to the presence of airway inflammation and decreased lung function in older children with a history of asthma.

REVIEWER COMMENTS: Limitations included the lack of a control asthma group without preschool exposure to tobacco smoke, the small sample size, and lack of interval assessment during the 10-year period to evaluate the potential confounding effect of other environmental factors, socioeconomic factors, or the development of other comorbidities. The study also did not consider whether aeroallergen sensitization had an impact on lung function over time. IOS is not as commonly performed as spirometry for the assessment of asthma, so the use of IOS in assessing and managing asthma in a clinical practice needs further validation. Nevertheless, this study provides further proof that early exposure to tobacco smoke in childhood potentially has long-term negative health effects.


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Exposure to Indoor Endocrine-Disrupting Chemicals and Childhood Asthma and Obesity

PURPOSE OF THE STUDY: To assess the association between the exposure of endocrine-disrupting chemicals (EDCs) and childhood asthma and obesity. Data regarding the extent to which adverse health effects arise from exposure to EDCs are limited, particularly in the pediatric population.

STUDY POPULATION: The study included a cross-sectional study of 815 children from 20 primary schools and 71 classrooms in Porto, Portugal.

METHODS: A questionnaire that encompassed social, demographic, and behavioral characteristics; respiratory and/or allergic health; and current symptoms for the previous 3 months was provided to caregivers of participants. Anthropometry, clinical assessments, spirometry, fractional exhaled nitrogen oxide, and pupillometry were performed. Researchers in this study measured the concentrations of 15 EDCs in 71 classrooms throughout 1 week in the winter, when indoor volatile organic compound concentration is known to be higher. Major EDC patterns were identified by using principal component analysis based on the 15 individual compounds. The effect of EDCs on asthma, the presence of respiratory symptoms in the previous 6 months, obesity, and body composition of the children were measured by using generalized linear models and multinomial logistic regression models.

RESULTS: In classrooms having more children with asthma and obesity, individual and combined EDC levels were found to be increased. Obesity was associated with higher levels of hexane, styrene, cyclohexanone, butylated hydroxytoluene, and 2-butoxyethanol. Higher numbers of children with asthma were found in classrooms with higher levels of o-xylene, m/p-xylene, ethylbenzene, benzene, and 2-ethyl-1-hexano. Nasal obstruction was found to be significantly associated with toluene, o-xylene, m/p-xylene, and ethylbenzene. Parasympathetic dysautonomia was observed with exposure to individual or combined EDCs.

CONCLUSIONS: The researchers in the study found that increased exposure to EDCs is associated with childhood asthma and obesity, even at low levels of EDC exposure. Of interest, parasympathetic dysautonomia was also observed, suggesting that EDCs increase parasympathetic activity, which may result in increased risk of asthma and obesity.

REVIEWER COMMENTS: Although many chemicals are known to interfere with the endocrine system, the data from this study add valuable information regarding the extent of their adverse effects on childhood asthma and obesity. This study adds important information to the body of literature regarding the effects of chemicals, not only on the respiratory health of children, but also on body weight. These findings can assist in formulating action plans to reduce EDC exposure and improve indoor air quality and, ultimately, improve children’s overall health.


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Being Overweight or Obese and the Development of Asthma

PURPOSE OF THE STUDY: Although adult obesity has been associated with 250,000 new cases of asthma annually, the authors attempted to associate overweight and obesity
Exposure to Indoor Endocrine-Disrupting Chemicals and Childhood Asthma and Obesity
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