

Published online before print October 24, 2007

Eur Respir J 2007, doi:10.1183/09031936.00086807

ORIGINAL ARTICLE

Household chemicals, persistent wheezing and lung function: Effect modification by atopy?

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▶ Abstract

To assess the effects of mothers' domestic chemical use during pregnancy on wheezing and lung function in children up to 8.5 years and to explore the potential modifying effect of atopy.

In the Avon Longitudinal Study of Parents and Children (ALSPAC), a cohort study, a maternal composite household chemical exposure (CHCE) score was derived. Wheezing phenotypes from birth to 7 years were assigned on the basis of reported wheeze, lung function (FEV₁, FVC, FEF₂₅₋₇₅) was measured at 8 ½ years and atopy by skin prick tests at 7 ½ years. Multinomial logistic and linear regression models assessed the relationship between wheezing outcomes, lung function and CHCE score, and interactions with atopy.

Increased CHCE score was associated with early (<18m) and intermediate onset (18–30m) persistent and late onset (>30m) wheezing in non-atopic children (Adjusted Odds Ratio per z-score of CHCE [95% confidence interval] =1.41 [1.13, 1.76]; 1.43 [1.02, 2.13]; 1.69 [1.19, 2.41])). Increasing CHCE score was associated with decrements in

FEV₁ and FEF₂₅₋₇₅

Higher domestic chemical exposure during pregnancy was associated with persistent wheeze and lung function abnormalities in non-atopics. This may result from prenatal developmental effects or postnatal irritant effects on the developing airway, but is unlikely to be mediated through increased hygiene in the home.

Keywords: ALSPAC, atopy, chemicals, children, wheezing

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