Abstract

Studies have shown links between household secondhand tobacco smoke (SHS) exposure and induction of childhood asthma. But the true nature of this link remains unclear in many studies. We conducted a meta-analysis of studies published from 1970 to 2005 to uncover consistent patterns of relative risk estimates (RRs), and found substantial heterogeneity within initial summary RRs of 1.48 [95% confidence interval (CI), 1.32–1.65], 1.25 (1.21–1.30), and 1.21 (1.08–1.36), for ever, current, and incident asthma, respectively. Lack of control for type of atopy history (familial or child) and child’s own smoking status within studies and age category altered summary RRs in separate metaregressions. After adjustments, consistent patterns of association emerged between SHS exposure and childhood asthma induction. Our summary RR of 1.33 (95% CI, 1.14–1.56) from studies of incident asthma among older children (6–18 years old) is 1.27 times the estimate from studies of younger children and higher than estimates from earlier meta-analyses. This shows that exposure duration may be a more important factor than previously understood, and suggests that SHS could be a more fundamental cause of childhood asthma than some previous meta-analyses have indicated.

Keywords

Childhood asthma, Environmental tobacco smoke, Meta-analysis, Meta-regression, Relative risk, Secondhand tobacco smoke