Eczema, respiratory allergies, and traffic-related air pollution in birth cohorts from small-town areas.

BACKGROUND: Traffic-related air pollution (TAP) impairs respiratory health and could influence the development of allergies, as was demonstrated in urban areas with relatively high pollution. Whether eczema is affected by TAP was rarely investigated. OBJECTIVE: To investigate whether exposure to TAP affects eczema and respiratory allergies also in small-town areas with lower concentrations of pollution. METHODS: Between 1995 and 1999, we recruited 3390 newborns from small-town areas. Diagnoses and symptoms of eczema and respiratory allergies were recorded by annual questionnaires. Seventy-seven percent of families participated until the child's 6th birthday, when a clinical test for eczema and IgE-sensitization was performed. Individual exposure to traffic-related soot and NO(2) at the children's home addresses was determined by land-use-regression. We used Cox-regression/log-binomial-regression to determine its confounder-adjusted association with incidence and prevalence of eczema and respiratory allergies. RESULTS: The prevalence of eczema at age 6 was significantly higher in children who resided in areas where TAP was higher. The adjusted relative risk for doctor diagnosed eczema for instance was 1.69 (95% confidence interval 1.04-2.75) per 90%-range of soot concentration. Current eczema at the
6 year clinical investigation was likewise associated, children with parental allergies showed significantly stronger effects (p<0.05). Incidence of eczema was not affected. No associations between TAP and asthma, hay fever, or allergic sensitization emerged. CONCLUSION: Eczema was sensitive to TAP, effects emerged even in lower polluted small-town areas of Germany. They could be seen for prevalence but not incidence of eczema. This is equivalent to a longer duration of eczema in exposed children.