

Reduction in ambient PM10 favourably influences changes in respiratory symptoms (SAPALDIA)

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In 1991, we examined 9651 adults in 8 areas of Switzerland. In this sample, PM10-levels were positively associated with dyspnoea and chronic bronchitis symptoms. As PM10 has decreased since then, we studied the impact of changes in PM10 levels on changes in reports of respiratory symptoms among subjects re-examined after 11 yrs.

This analysis includes 5389 participants in both surveys with complete data on respiratory symptoms and covariates. Change in air pollution exposure was defined as the difference between the GIS-based estimates of PM10-exposure at subjects' addresses in 2002 and 1991. We used logistic regression to model the odds of reporting respiratory symptoms in 2002 as a function of change in PM10-exposure, of symptoms in 1991, sex, age, BMI, active and passive smoking, exposure at work, social status, atopy, early respiratory infection, parental asthma and atopy, adjusting for clustering within areas.

Each 10 µg/m³-decrease in PM10-levels over 11 years was associated with the following adjusted OR's (95%-CI's) of reporting specific symptoms: regular cough: 0.79 (0.64–0.98); regular phlegm: 0.76 (0.60–0.97); wheezing in last 12 months: 0.75 (0.56–1.0).

Our findings are suggestive of a dose-dependent favourable effect from decreases in ambient PM10 levels over 11 years on the progression of important respiratory symptoms.

Abstract ERS 2005 Vol 26 (suppl. 49) : #3118

Date: Tuesday, September 20, 2005

Session Info: Presentation: Traffic, particles and health