Cross-sectional associations between air pollution and chronic bronchitis : an ESCAPE meta-analysis across five cohorts

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This study aimed to assess associations of outdoor air pollution on prevalence of chronic bronchitis symptoms in adults in five cohort studies (Asthma-E3N, ECRHS, NSHD, SALIA, SAPALDIA) participating in the European Study of Cohorts for Air Pollution Effects (ESCAPE) project.; Annual average particulate matter (PM10, PM2.5, PMabsorbance, PMcoarse), NO2, nitrogen oxides (NOx) and road traffic measures modelled from ESCAPE measurement campaigns 2008-2011 were assigned to home address at most recent assessments (1998-2011). Symptoms examined were chronic bronchitis (cough and phlegm for $\geq$3months of the year for $\geq$2years), chronic cough (with/without phlegm) and chronic phlegm (with/without cough). Cohort-specific cross-sectional multivariable logistic regression analyses were conducted using common confounder sets (age, sex, smoking, interview season, education), followed by meta-analysis.; 15279 and 10537 participants respectively were included in the main NO2 and PM analyses at assessments in 1998-2011. Overall, there were no statistically significant associations with any air pollutant or traffic exposure. Sensitivity analyses including in asthmatics only, females only or using back-extrapolated NO2 and PM10 for assessments in 1985-2002 (ECRHS, NSHD, SALIA, SAPALDIA) did not alter conclusions. In never-smokers, all associations were positive, but reached statistical significance only for chronic phlegm with PMcoarse OR 1.31 (1.05 to 1.64) per 5ţg/m(3) increase and PM10 with similar effect size. Sensitivity analyses of older cohorts showed increased risk of chronic cough with PM2.5abs (black carbon) exposures.; Results do not show consistent associations between chronic bronchitis symptoms and current traffic-related air pollution in adult European populations.

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