

Publication

Ambient air pollution : a cause of COPD?

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The role of ambient air pollution in the development of chronic obstructive pulmonary disease (COPD) is considered to be uncertain. We review the evidence in the light of recent studies. Eight morbidity and six mortality studies were identified. These were heterogeneous in design, characterisation of exposure to air pollution and methods of outcome definition. Six morbidity studies with objectively defined COPD (forced expiratory volume in 1 s/forced vital capacity ratio) were cross-sectional analyses. One longitudinal study defined incidence of COPD as the first hospitalisation due to COPD. However, neither mortality nor hospitalisation studies can unambiguously distinguish acute from long-term effects on the development of the underlying pathophysiological changes. Most studies were based on within-community exposure contrasts, which mainly assess traffic-related air pollution. Overall, evidence of chronic effects of air pollution on the prevalence and incidence of COPD among adults was suggestive but not conclusive, despite plausible biological mechanisms and good evidence that air pollution affects lung development in childhood and triggers exacerbations in COPD patients. To fully integrate this evidence in the assessment, the life-time course of COPD should be better defined. Larger studies with longer follow-up periods, specific definitions of COPD phenotypes, and more refined and source-specific exposure assessments are needed.

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