

LONG TERM EXPOSURE TO TRAFFIC RELATED AIR POLLUTION AND MORTALITY IN A GREEK COHORT STUDY

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Background and Aims: Several studies have showed that traffic-related air pollution, using NO_x and particulate matter (PM) concentrations, is a potential risk factor for public health. The present study aims to evaluate the effect of exposure to traffic-related air pollution on all cause, cause specific mortality and incidence in a Greek cohort.

Methods: Data from the on-going prospective study on nutrition and cancer (EPIC Project) in 10 municipalities of the greater Athens area with 2,756 subjects followed from 1997 to 2009 was used. Air pollution exposure was estimated using a Geographical Information System (GIS) approach to link geocoded residential addresses to a road database and estimate the exposure to NO₂ and PM₁₀ at the subjects' home addresses. We conducted Cox proportional hazards survival regression analysis, adjusting for potential confounders.

Results: NO₂ and PM₁₀ yearly averaged individual exposure estimates were associated with increased cardiovascular (CVD) and coronary heart disease (CHD) mortality. Hazard ratios (95% confidence intervals) for a 10•g/m³ increase in NO₂ and PM₁₀ were 1.61 (0.92 – 2.80) and 3.97 (1.06 – 14.84) respectively for CHD mortality. There were no clear associations with respiratory and lung cancer mortality, however the number of events was very small.

Conclusions: The present study suggests that long-term exposure to traffic-related air pollution has an impact on mortality.