170 ISCHEMIC HEART DISEASE MORTALITY AND METALWORKING FLUID EXPOSURE IN AN ACTIVE AUTOWORKERS COHORT

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Objectives Increased risk of ischemic heart disease (IHD) mortality is related to particulate matter (PM) in air pollution. The absence of occupational studies of heart disease is striking in light of high PM exposures in many industrial environments. We examine this plausible and understudied hypothesis in an existing cohort mortality study of autoworkers exposed to metalworking fluids.

Methods We restricted the analysis of IHD mortality to actively employed person-time. Relative risks (RR) were estimated in a pooled logistic regression model for exposure to straight, soluble, and synthetic fluid (mg/m3 total PM). Exposure was partitioned into a recent time window (annual average in the year prior to the event) and past time window (cumulative exposure before the recent window).

Results Based on 556 deaths from IHD and 637 553 person-years, a U-shaped association was observed with past exposure to straight fluid. Relative to the unexposed, the RR was 1.40 (95% CI 1.05 to 1.87) and 1.57 (95% CI 1.17 to 2.12) in the lowest and highest quintiles of exposed workers, respectively. For recent exposure, an increased risk was observed in only the lowest quintile of straight fluid exposure, RR of 1.39 compared to unexposed (95% CI 0.95 to 2.02). Results were null for soluble and suggestive for synthetic fluid.

Conclusions Evidence suggests that occupational exposure to particulate matter may lead to excess risk of IHD mortality among active workers. Moreover, the shape of the exposure-response indicates elevated risk even in the lowest categories of both recent and past exposure.