EXPOSURE TO CARBON BLACK AND LUNG CANCER RISK IN A MULTICENTRE CASE-CONTROL STUDY IN CENTRAL AND EASTERN EUROPE AND THE UNITED KINGDOM

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Objectives We estimated the lung cancer risk following occupational exposure to carbon black while adjusting for smoking, and explored the effect of time-windows of carbon black exposure since recent studies have hypothesised that recent exposure is the most important time-window for carbon black exposure.

Methods The multicenter case-control study on lung cancer was conducted from 1998 to 2002 in seven European countries; 2861 cases and 2936 controls were recruited. Occupational and socio-demographic information was collected through interviews. Industrial hygiene experts in each country evaluated exposure to 70 occupational agents, including carbon black. Unconditional logistic regression models were applied to calculate ORs and 95% CIs adjusting for centre, sex, other occupational exposures and tobacco smoking.

Results The OR for ever exposure to carbon black was 1.64 (95% CI 1.09 to 2.46). We observed a significant dose-response trend for maximum intensity (p-value, 0.02) and average intensity (p-value, 0.03). The OR for the highest exposure category of cumulative exposure in the last 15-years was OR 3.32 (95% CI 1.22 to 9.03).

Conclusions The results show an association between occupational exposure to carbon black and lung cancer risk, and a significant dose-response relationship with increasing intensity. The most recent 15 years appear to be the most relevant time of exposure.