Occupational exposure to endotoxins and lung cancer risk: results of the ICARE Study

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Résumé en anglais	OBJECTIVES: To investigate the role of occupational exposure to endotoxins in lung cancer in a French population-based case-control study (ICARE (Investigation of occupational and environmental causes of respiratory cancers)). METHODS: Detailed information was collected on the occupational history and smoking habits from 2926 patients with histologically confirmed lung cancer and 3555 matched controls. We evaluated each subject's endotoxin exposure after cross referencing International Standard Classification of Occupations (ISCO) codes (for job tasks) and Nomenclature d'Activités Françaises (NAF) codes (for activity sectors). Endotoxin exposure levels were attributed to each work environment based on literature reports. ORs and 95% CIs were estimated using unconditional logistic regression models and controlled for main confounding factors. RESULTS: An inverse association between exposure to endotoxins and lung cancer was found (OR=0.80, 95% CI 0.66 to 0.95). Negative trends were shown with duration and cumulative exposure, and the risk was decreased decades after exposure cessation (all statistically significant). Lung cancer risk was particularly reduced among workers highly exposed (eg, in dairy, cattle, poultry, pig farms), but also in those weakly exposed (eg, in waste treatment). Statistically significant interactions were shown with smoking, and never/light smokers were more sensitive to an endotoxin effect than heavy smokers (eg, OR=0.14, 95% CI 0.06 to 0.32 and OR=0.80, 95% CI 0.45 to 1.40, respectively, for the quartiles with the highest cumulative exposure, compared with those never exposed). Pronounced inverse associations were shown with adenocarcinoma histological subtype (OR=0.37, 95% CI 0.25 to 0.55 in the highly exposed). CONCLUSIONS: Our findings suggest that exposure to endotoxins, even at a low level, reduces the risk of lung cancer.
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