

Abstracts

RF or IF EMF and glioma or meningioma risk, and the majority of odds ratios (ORs) were <1.0. Some elevated ORs were observed in the highest exposure quantile (90th) for both RF electric fields and IF magnetic fields in the 1–4 year exposure time window for glioma, but were not statistically significant.

Conclusions Lifetime occupational RF and IF exposures based on our index were not associated with the risk of glioma or meningioma. Further work should include more exposed participants and examine alternative exposure or dose indices such as those incorporating thresholds on biological effects or combinations of static and RF magnetic fields.

Oral Presentation Cancer

0364 RISK OF PROSTATE CANCER IN FIREFIGHTERS: A META-ANALYSIS

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Objectives Although epidemiological studies have generally shown inconsistent findings for prostate cancer risk and occupation, some associations with firefighting have been observed. Firefighters are exposed to harmful substances that include known carcinogens. This meta-analysis aimed to synthesise the available published evidence on prostate cancer risk in firefighters.

Methods A comprehensive search of PubMed and Web of Science was conducted for all epidemiological studies on firefighting and prostate cancer published in English from 1980–2017. Studies that reported on risk estimates for incidence and/or mortality with corresponding ever/never employment were extracted from included studies. Meta risk estimates (mRE) were determined in a random effects model and between-study heterogeneity was evaluated based on I² values.

Results Of the 101 studies retrieved, 25 firefighter studies were included in this analysis. Ever employment as a firefighter, based on results from all studies, was associated with a 15% increase in prostate cancer risk (95% CI 1.04–1.27, I²=71%). By study design, the mRE was 1.14 (95% CI 1.03–1.26, I²=67%) for 18 cohort studies and 1.22 (95% CI 0.90–1.67, I²=82%) for 5 case-control studies. Incidence studies had an mRE of 1.17 (95% CI 1.07–1.28, I²=74%) and mortality studies had an mRE of 1.12 (95% CI 0.92–1.36, I²=50%). For linkage and registry-based studies, an mRE of 1.19 (95% CI 1.05–1.33, I²=61%) was observed. Estimates showed moderate to substantial heterogeneity.

Conclusions This analysis showed evidence of a small excess risk of prostate cancer in firefighters across study designs. Further evaluation of heterogeneity, potential biases, and quality assessment are currently underway.

Poster Presentation

Burden of Disease

0365 ESTIMATION OF THE BURDEN OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE DUE TO OCCUPATION IN GREAT BRITAIN

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Introduction We have estimated the burden of COPD for deaths and prevalence due to occupational exposures in Britain using published literature and available national data plus a population based job exposure matrix (ACEJEM). The prevalence estimate avoids underestimation of the burden as estimates of COPD deaths, or hospitalisations, only account for the most serious cases.

Methods We used population attributable fractions (PAFs), requiring estimates of the population exposed to airborne pollutants at work, derived from 2001 Census data by job code matched to a JEM giving proportions exposed and average levels of exposure to pollutants including vapours, gases, dusts, fumes (VGDF) by UK SOC2000 job code. Exposures were matched to the best currently available population-based risk estimates. We estimated prevalent COPD PAFs using a novel age-time window approach to estimate prevalent numbers exposed, and deaths from COPD which requires numbers ever exposed were estimated using a risk exposure period methodology, taking into account age.

Results The PAF for prevalent COPD due to occupational exposure to VGDF was 18.7% for men, 8.0% for women and 11.5% overall giving 22 700 cases in men and 13 400 in women. Equivalent PAFs for COPD deaths, based on exposure 30+ years before 2010, were 18.3%/6.1%/12.3% (2,480 deaths in men, 790 in women). Prevalent PAF estimates which included a 30 year onset lag and mortality PAFs assuming 0–80 year latencies produced very similar results.

Conclusions The novel approach, making best use of available data, provides burden estimates which may inform strategies for reducing workplace COPD risks.

Oral Presentation

Burden of Disease

0366 COMPARING ALTERNATIVE METHODS OF ESTIMATING FUTURE DISEASE BURDEN DUE TO OCCUPATION

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