CORRESPONDENCE

Respiratory health effects of opencast coaling: a cross sectional study of current workers

EDITOR,—We are writing to comment on the manuscript by Love et al, on the respiratory health effects associated with opencast mining in the United Kingdom.

Firstly, several years ago, we reported the dangers of surface mining in the United States. Although the general consensus had been that employment as a surface miner was nearly without risk, we identified the serious risk for aggressive pneumoconiosis in surface drillers and driller helpers. A review of our recent clinical experience has shown that the most severe cases of pneumoconiosis in West Virginia are most often associated with surface mine drilling. We are interested in the published report by the authors. Time spent in opencast mining and opencast mining exposure in the same industry. If the data are sufficient to define the risk of employment in the different jobs within this industry. If the data are sufficient to define the risk of employment, we ask that it be presented in a different manner, so that the risk of working in these jobs in the United Kingdom can be evaluated and better understood.

The authors extrapolate the effects of exposure in preproduction for 10 and 20 years into the future, based upon a mean of 6.9 years of exposure (data from table 1). Although the maximum duration of employment was 36 years in preproduction, a mean of 6.9 years in preproduction for workers had exposures exceeding 10 years. In view of the relatively brief mean duration of exposure and the many apparently false positive radiographs at preproduction category 0/1, how accurate is this prediction likely to be?

In summary, this is an interesting study of the respiratory health of opencast miners, but it seems that there are no sufficient number of men in the report for workers to other dusty jobs to determine the risk of employment in the different jobs within this industry. If the data are sufficient to define the risk of employment, we ask that it be presented in a different manner, so that the risk of working in these jobs in the United Kingdom can be evaluated and better understood.

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Authors’ reply.—We thank Banks et al for their interest in our paper. They make several comments, and we are glad of the opportunity to reply to these.
age, smoking, and time worked in preproduction occupations. Uncertainty in these predicted averages is measured as standard errors, which are also given in the table. We are grateful to Banks et al for spotting the typographic error in the title of table 6, which wrongly implies that the response was ≤ 0.1; all the text is correct and consistent in referring to the response as ≥0.1.

Banks et al question our recommendation for screening the men at greatest risk. In fact, our report to the industry1 made several recommendations: annual dust and quartz monitoring in the dustiest jobs; improved dust control and suppression, particularly at dusty temporary explosion sites; static field sampling for airborne dust at selected sites; screening by chest radiography of the more highly exposed employees, every three years in the first instance, until control measures are found to be adequate; follow up study, in due course, to examine the effect of dust control measures on concentrations and on the health of the workforce; and the examination of exposure and health in off site employment and during cleaning teams. We thought and still think, that these recommendations were justified in the light of our findings.

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CORRECTION

The title of table 6 should read “Predicted risks of showing small opacities ≥0.1 as a function...”.

Pulsed electromagnetic fields and cancer

EDITOR.—Savitz, et al have further analysed the reported association between lung cancer and 60 Hz magnetic fields and pulsed electromagnetic fields (PEMF) in electrical utility workers. They found a weak association but raised the possibility that larger associations may have been diluted through misclassification of exposure. They also note that the PEMF measurements were likely to have recorded use of communication devices such as mobile phones and two way radios which emit radio frequency radiations, as well as high frequency transients from the electricity network.

It is important that subanalyses of PEMFs attributed to such radio frequency radiations identify any major differences in the radio system used by the workers in different industries because of their potentially differing biological effects and so avoid non-differential misclassification. Portable radios operate at differing parts of the spectrum, including 150, 450, and 900 MHz. The wavelengths range from around 4 m to 20 cm. The longer waves couple with the whole body but shorter ones interact more with a local body part such as the head. In turn this could influence development of cancer in different sites, such as leukemia or brain tumour. The modulations (AM, FM, pulsed) used should also be noted as pulsed frequencies have been found to promote tumours in animals.3

The duration of calls is obviously relevant to exposure but the meters used for detecting PEMFs are intended to only detect transient exposures and hence would underestimate exposure to radio frequency radiations. The place of use may also influence exposure. For example communication from a vehicle with an external antenna should cause minimal exposure, but communication from a tower made of metal beams may lead to local field enhancements and increased exposure depending on the power of the radios.

The reported interaction of radio frequency radiations with 3,4-benzpyrene on mouse skin to promote tumours is relevant to the finding of increased lung cancer in utility workers, some of whom are exposed to occupational carcinogens as well as cigarette smoke. The possibility that radio frequency radiations from radios may act as a cancer promoter could be considered in data analysis of cancer in various sites where differences between industries are found. Adjustment should be made for the types of systems used and the patterns of use by workers.

Given the widespread use of radio frequency radiation communication devices in industry a further detailed analysis of the data would be of much interest.

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BOOK REVIEW

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Biological Monitoring Methods for Industrial Chemicals, 3rd edition
R L MAYNARD
The first edition of this publication appeared in 1980 and since then, there has been much progress in laying down national and international standards for biological monitoring reference values. The format of the third edition remains substantially unchanged. Monographs are presented over listings of chemicals to which workers might be exposed and where some form of biological monitoring has been recommended. Each monograph is headed by recent values from German and American authorities for TVT (biological tolerance value), BEI (biological exposure index), EKA (carcinogen exposure equivalent), MAK (maximum workplace concentration), OSHATWA (8 hour time weighted average maximum permissible concentration defined by the United States Occupational Safety and Health Administration), and TLV (threshold limit value). The half life as a percentage in blood is also quoted. Sections follow on occurrence and usage; blood concentrations; metabolism and excretion; toxicity; biological monitoring; and analysis. After the reference list, a few analytical procedures to monitor this type of substance are given. The book is a useful source of reference for students in related disciplines such as biochemical toxicology it will be quite useful.

The book is not cheap at $129.00, but given that it is likely to be consulted very often, this outlay will be justified.

BRIAN WIDDOP

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