

Oral Presentation

Pesticides

0496 IMPROVING OCCUPATIONAL EXPOSURE ASSESSMENT METHODOLOGIES FOR EPIDEMIOLOGICAL STUDIES ON PLANT PROTECTION PRODUCTSKaren Galea. *Institute of Occupational Medicine, Edinburgh, UK*

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This presentation will introduce and describe the rationale for a new comprehensive study which aims to better understand the reliability of assessment of human exposure to pesticides in previous occupational epidemiological investigations, and to use this information to recommend improvements in scientific practice for the future. This is to be achieved by assessing the reliability and external validity of the surrogate measures used to assign exposure within individuals or groups of individuals, which are frequently based on self-reported data on exposure determinants like spraying methods and frequency of spraying or job/crop exposure matrices. In addition we will evaluate the size and effects of recall bias on misclassification of exposure to pesticides and associated health effects. The presentation will introduce the methodology that the project will use to achieve these aims and objectives. Existing and newly collected (biological) monitoring exposure data from several existing epidemiological studies and historical records, along with new studies in various working populations in Europe and elsewhere will be used to examine the performance of exposure assessment approaches. Urinary metabolites of pesticides will be selected with due consideration on the extent of use within the study populations, validity of biomonitoring methods etc. The performance of the various exposure assessment methods will be compared and contrasted within existing epidemiological studies. Discussion on the proposed methodology will be invited as part of the symposium panel and delegate discussion session.

Oral Presentation

Neurological Effects

0497 HEAD TRAUMA IN SPORT AND NEURODEGENERATIVE DISEASE: AN INTRODUCTION AND REVIEW OF THE EPIDEMIOLOGICAL EVIDENCE

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A number of small studies and anecdotal reports have been suggested that sports involving repeated head trauma may have long-term risks of neurodegenerative disease. There are now plausible mechanisms for these effects, and a recognition that these problems do not just occur in former boxers, but in a variety of sports involving repeated concussions, and possibly also in sports in which low-level head trauma is common. These neurodegenerative effects potentially include increased risks of

impaired cognitive function and dementia, Parkinson's Disease, and amyotrophic lateral sclerosis. Many would argue for taking a precautionary approach and immediately banning or restricting sports such as boxing. However, there are important public health issues in terms of how wide the net should be cast in terms of other sports, and what remedial measures could be taken. This in turn requires a major research effort involving both clinical and basic research to understand the underlying mechanisms leading from head trauma to neurodegenerative disease, and epidemiological studies to assess the long-term consequences.

Oral Presentation

Neurological Effects

0498 BIOMARKERS OF CONCUSSION

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Concussion is a frequent occurrence in many contact sports and among soldiers, but also a possible inevitable consequence of accidents. Currently, the diagnosis of concussion is based on clinical symptoms, and it is difficult to predict prognosis. Biomarkers could be of invaluable help in informing the neuropathological events underlying concussive episodes. Specifically, they could contribute defining the diagnosis, the recovery process, and the long-term effect in presence or absence of chronic traumatic encephalopathy. For diagnosis and recovery, the neurofilaments and tau protein are promising biomarkers. No markers for CTE have been developed to date. The identification of biomarkers of diagnosis and recovery is particular important as most current research suggests that the risk of long-term symptoms following concussion is highest in individuals who have received repetitive concussions before the brain has recovered properly.

Oral Presentation

Neurological Effects

0499 LONG-TERM HEALTH OUTCOMES AFTER EXPOSURE TO REPEATED CONCUSSION IN ELITE LEVEL RUGBY UNION PLAYERS

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Interest and concern about late effects of concussion in contact sports has been growing, although research on long-term health outcome is limited. There has been particular concern with regard to neurodegenerative changes that might become evident