1074 HEALTH SYMPTOMS AND DERMAL EXPOSURE IN CASSAVA FARMERS

Chalalai Hanchenlaksh*. *School of Occupational Health and Safety, Suranaree Univesity of Technology, Nakhon Ratchasima, Thailand*

10.1136/oemed-2018-ICOHabstracts.1316

In Thailand, information on the extent of pesticide exposure and the health effects of such pesticide exposure among farmers is lacking. In contrast, the agricultural chemical has increased in the worldwide. Data from a pilot study amongst 16 farming families (Hanchenlaksh, *et al.*, 2011) indicated that dermal exposure to pesticides, as assessed using a previously validated structured, semi-quantitative observational method (DREAM) wascollected. Showering or washing immediately after spraying greatly reduced potential exposure of family members.

The study was conducted in Suranaree sub-district, Muang district in Nakhonratchasima province, Thailand. 50 Cassava farmers, randomly selected from the agricultural communities, participated. Information on farmers was collected by an interviewer-led questionnaire and a self-completed diary for any health symptoms in the spraying week and a non-spraying reference period from the farmers. Dermal exposure of the farmers during one spraying session was assessed by the DREAM methodology.

Potential dermal exposure estimates indicated considerable dermal exposure for farmers that was, on average. Only 18% of farmers used any form of personal protective equipment (PPE) and such as actual dermal exposure equated potential exposure for the majority of farmers. Almost 90% of farmers showered immediately after using pesticides. During spraying season 92% reported muscle/joint, 68% breathing/heart, 64% reported gastro-intestinal, 62% visual, 42% skin problems and 38% eye problems; compared with the non-spraying season when adverse effects were only reported by 25%, 17%, 15%,10%, 8%, 5%, respectively.

These data show that farmers experienced significant potential exposure to pesticides by the dermal route while spraying pesticides, and that only a small minority wore PPE. The prevalence of adverse health symptoms self-reported by farmers was much higher during the spraying season compared to non-spraying reference periods.

1161 CENTRAL NERVOUS SYSTEM TUMOURS AND AGRICULTURAL EXPOSURES IN THE PROSPECTIVE COHORT AGRICAN

[1]Clément Piel, [1,2]Camille Pouchieu, [3,4,5]Séverine Tual, [1]Lucile Migault, [3,4,5]Clémentine Lemarchand, [1,6]Camille Carles, [3,4,7]Mathilde Boulanger, [1,2]Anne Gruber, [1]Virginie Rondeau, [8]Elisabeth Marcotullio, [3,4,5]Pierre Lebailly, [1,2,6]Isabelle Baldi. [1]*Epicene Team, ISPED, Bordeaux Population Health Research Centre, University of Bordeaux, Bordeaux, France*; [2]*Registre des tumeurs primitives du système nerveux central de la Gironde, ISPED, Bordeaux Population Health Research Centre, University of Bordeaux, Bordeaux, France*; [3]*INSERM, UMR 1086 Cancers et Préventions, Caen, France*; [4]*Université de Caen Normandie, Caen, France*; [5]*Centre de Lutte Contre le Cancer François Baclesse, Caen, France*; [6]*CHU de Bordeaux, Service de Médecine du Travail, Bordeaux, France*; [7]*CHU de Caen, Service de Pathologie professionnelle, Caen, France*; [8]*Caisse Centrale de la Mutualité Sociale Agricole, Direction de la santé sécurité au travail, Bagnolet, France*

10.1136/oemed-2018-ICOHabstracts.1317

Studies in farmers suggest a possible role of pesticides in the occurrence of Central Nervous System (CNS) tumours but scientific evidence is still insufficient. Using data from the French prospective agricultural cohort AGRICAN (Agriculture and Cancer), we investigated the associations between exposure of farmers and pesticide users to various kinds of crops and animal farming and the incidence of CNS tumours, overall and by subtypes. Over the 2005–2007, 1 81 842 participants completed the enrollment questionnaire that collected a complete job calendar with lifetime history of farming types. Associations were estimated using proportional hazards models with age as underlying timescale. During a 5.2 years average follow-up, 273 incident cases of CNS tumours occurred, including 126 gliomas and 87 meningiomas. Analyses showed several increased risks of CNS tumours in farmers, especially in pesticide users (hazard ratio=1.96; 95% confidence interval: 1.11–3.47). Associations varied with tumour subtypes and kinds of crop and animal farming. The main increases in risk were observed for meningiomas in pig farmers and in farmers growing sunflowers, beets and potatoes and for gliomas in farmers growing grasslands. In most cases, more pronounced risk excesses were observed among pesticide applicators. Even if we cannot completely rule out the contribution of other factors, pesticide exposures could be of primary concern to explain these findings.

1196 OSH IN AGRICULTURE – WHAT IS THE SECOND EUROPEAN SURVEY OF ENTERPRISES ON NEW AND EMERGING RISKS (ESENER-2) TELLING US?

X Irastorza*. *European Agency for Safety and Health at Work (EU-OSHA), Bilbao, Spain*

10.1136/oemed-2018-ICOHabstracts.1318

Introduction Agriculture plays an important part in Europe's economy. The EU-28's farm labour force in 2013 reached 22.2 million–not all full-time-, most of them in Poland and Romania ('Agriculture, forestry and fishery statistics', Eurostat, 2016). A majority of farms are small businesses, very frequently family run. The sector is highly diverse and so are its OSH challenges, most often leading to higher than average accidents and health problems, both physical and mental. ESENER-2 provides a comparative picture of OSH management in agriculture across Europe.

Methods ESENER-2 is a survey of 49 320 establishments across 36 European countries, covering all size classes and sectors, completed in autumn 2014. It asks 'the person who knows best in the establishment how OSH is managed' about:

1. OSH in general,
2. psychosocial risks,
3. drivers and barriers to OSH management, and
4. worker participation.

Data were analysed using SPSS.

Results Most frequently reported risks are 'risk of accidents with machines or hand tools' (78%) and 'risks of accidents with vehicles in the course of work (73%), clearly above the average. Agriculture tops the ranking for two of the risk factors considered in ESENER-2: 'heat, cold or draught' (65%) and 'repetitive hand or arm movements' (63%), and is clearly above the average for 'chemical or biological substances' (62%) and 'long or irregular working hours' (35%).

Conclusion At EU level these challenges have been recognised as a priority. ESENER-2 confirms the wide range of OSH issues identified in other sources and points too at a lower than average use of 'support' services in agriculture, as well as awareness problems. Further analyses of the findings contribute to a better understanding of the challenges and drivers and support policy makers and experts in their future actions to promote a health and safety culture in agriculture.

1205 COHORT STUDY OF MORTALITY AMONG MALE FARM WORKERS IN SPAIN

[1]G Zhao*, [2]E Regidor, [3]E Koselka, [1]E Ronda. [1]*University of Alicante, Alicante, Spain*; [2]*Complutense University of Madrid, Madrid, Spain*; [3]*Northwestern University, Evanston, USA*

10.1136/oemed-2018-ICOHabstracts.1319

Introduction Jobs in the agricultural sector are associated with high demands, risks, and stress for workers. Spain is of great importance for the European agricultural sector; nearly half the country's land is dedicated to agricultural use. However, the health and mortality risks associated with agricultural work in Spain remain understudied. The aim of this study is to compare the mortality rates for male farm workers with mortality rates for males in non-agricultural occupations in Spain over a ten-year period.

Methods The prospective cohort study followed 8,695,560 male workers in Spain from 2001 to 2010. Participants in the study were selected from the 2001 census; at baseline, all participants were ages 16 to 64 years and employed in an agricultural job. Mortality data included in the present study were obtained from participants' death certificates. For each cause of death, the age-adjusted mortality rates for farm workers and for non-farm workers was calculated per 1 00 000 person-years of follow-up. These rates were used to compare the rate ratio between male farm workers and non-farm workers.

Results The all-cause mortality rate for farm workers was 13% greater than that of non-farm workers, with a rate radio estimate of 1.13 (95% CI: 1.11 to 1.16). For cancer deaths, the mortality rates of lip, laryngeal and skin cancer were higher and statistically significant for farm workers. Rates of death resulting from respiratory disease, circulatory disease, accident, and suicide were all significantly higher for farm workers than for non-farm workers.

Discussion These results are the first obtained in Spain from a large prospective agricultural cohort. They show that male farm workers are a vulnerable population in terms of health status. Elevated rates of all-cause and specific-cause mortality in male farm workers could be associated with frequent exposure to occupational hazards, including pesticides, high temperatures, and long working hours.

1210 CIPA-TOX: A NEW TOOL TO ASSESS RETROSPECTIVE OCCUPATIONAL EXPOSURE AND HEALTH EFFECTS TO PESTICIDES IN FRANCE

[1,2]Johan Spinosi, [1,2]Anissa Batti, [1,2]Laura Chaperon, [1,2]Mounia EL Yamani*. [1]*Direction Santé Travail Agence nationale de santé publique, 12 rue du Val d'Osne 94415 Saint-Maurice Cedex France*; [2]*Université Claude Bernard Lyon 1/Umrestt, 8 avenue Rockefeller 69373 Lyon Cedex 08 France*

10.1136/oemed-2018-ICOHabstracts.1320

Introduction It is extremely difficult to evaluate the extent to which agricultural workers are exposed to pesticides. This is due to the large number of plant protection products (PPPs) used on a single crop and the variety of active substances (ASs) that have been used over the course of time.

Methods PPP Index is a repertoire of pesticides listing the ASs authorised and marketed in France each year.

All the data collected between 1961 and 2014 was compiled in CIPA-TOX database. Relevant toxicological iformation was added to 1053 ASs. The method used to is based on European regulations, international classification (IARC and US-EPA for carcinogens) and on the search for toxicological reference values (TRV). One or several health effects was attributed to ASs including carcinogenicity, reprotoxicity, neurotoxicity, endocrine disruption, etc.

Results CIPA-Tox provides information about the use of PPP over time in France. The number of ASs authorised, decreased slightly in the second half of the first decade of the millennium; it then remained stable through 2014. For the toxicological field, more than 70% of the substances authorised in France since 1960 have at least one health effect. Six substances classified as probable or proven carcinogens remain on the market. Endocrine disruptors represent more than 100 authorised ASs. The most affected crops are vinyards and arboriculture.

Discussion The advantages of CIPA-TOX are to take into account all the ASs marketed since 1961 and to apply for identifying health effects a clear and rigorous protocol. The limits are that some substances do not show any health effect. This doesn't mean that they are not harmful but only that the data are lacking. The TRV based on a threshold to avoid the first relevant health effect that appears. This does not mean that other effects do not exist.

1280 IMPROVING EXPOSURE ASSESSMENT METHODOLOGIES FOR EPIDEMIOLOGICAL STUDIES ON PESTICIDES

[1]Karen Galea, [1]Ioannis Basinas, [1,2]John Cherrie, [3]Roel Vermeulen, [3]Hans Kromhout, [4]Kate Jones*, [4]Anne-Helen Harding, [5]Martie van Tongeren, [5]Andrew Povey. [1]*Centre for Human Exposure Science (CHES), Institute of Occupational Medicine, Edinburgh, UK*; [2]*Heriot Watt University, Institute of Biological Chemistry, Biophysics and Bioengineering, Edinburgh, UK*; [3]*Institute for Risk Assessment Sciences, Utrecht University, The Netherlands*; [4]*Health and Safety Laboratory, Harpur Hill, Buxton, UK*; [5]*Centre for Occupational and Environmental Health, Faculty of Biology, Medicine and Health, University of Manchester, UK*

10.1136/oemed-2018-ICOHabstracts.1321

Introduction The presentation describes a comprehensive study to better understand the reliability of assessment of human exposure to plant protection products (PPP) in previous occupational epidemiological investigations, and to use this information to recommend improvements in scientific practice for future studies. Further, it aims to assess the reliability and external validity of surrogate measures used in these studies to assign exposure to individuals or groups of individuals on the basis of self-reported information, job/crop exposure matrices and exposure algorithms. The project will also evaluate the size and the effects of recall bias on the misclassification of exposure to PPPs and associated health effects.

Methods Existing and newly collected (biological) monitoring data from several existing epidemiological studies and historical records across various populations in Europe, Africa and Asia. Urinary metabolites of pesticides will be selected with due consideration on the extent of use within the study