Objective To determine whether overweight and obesity and age are associated with a higher risk of accidents at work and occupational disease.

Background Data During recent years, professional contingencies have been increasing at work, a change that coincides with a higher prevalence of obesity and older work population.

Methods This cross-sectional study was carried out among 1489 workers in healthcare industry. This study identified the prevalence of obesity and overweight in a hospital and its associations with occupational diseases and accidents at work over a 4 years' period. With and without absences from work and the length of the absences were recorded. Body mass index (BMI) and demographic details were recorded.

Results At baseline, 48,3% had normal-weight (BMI [body mass index]: 18.5–24.99 kg/m²), 34,3% were overweight (BMI: 25–29.99 kg/m²), 14,8% were obese (BMI ≥30 kg/m²), and 2,6% were underweight (BMI <18.5 kg/m²). During the 4 years' period, with a mean of 46 years, 263 participants were diagnosed with a professional contingency (accident at work or occupational disease). Compared with normal-weight individuals, there was no statistically significant difference having an occupational contingency between overweight and obese workers (p-value 0,161). Although, we found that the age is a risk factor of having an accident at work.

Conclusion Obese and overweight persons are not at a higher risk of developing an occupational contingency. Furthermore, our results indicate that the age might be a novel explanation for the increased number of workers with accidents at work.

Poster Presentation

Methodology

0438 FIELD STUDY POTENTIAL IN INDIA FOR OCCUPATIONAL HEAT STRESS – CHALLENGES AND OPPORTUNITIES

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Collecting information about health and productivity implications of occupational heat exposures directly from workers can have its own challenges but not impossible to accomplish. This is presented based on experiences from prior work in occupational setting-based participatory research with workers. Permissions from industries to conduct research and the initial lack of trust and scepticism from the workers is a major challenge. Lack of mutual understanding between the workers and the researchers' expectation, lack of understanding of the study objectives both by the untrained interviewer and workers, cognitive limitations and busy schedule of the workers create barriers to reliable and complete data collection. Apart from these, research logistics and procedures such as recruitment, travel and compensation for the research personnel, quality and interpretation of data, including issues of validity and reliability are other challenges. Strategic planning, consultation with employers, ethical and careful development of trust between the researcher, employer and the worker have been key to the success of the field study that

requires investment and deployment of time and resources. A well-thought through and validated questionnaire structured with contextual approaches, trained interviewers and conducting cohort studies in the same workplaces have also been successful methods in developing trust for eliciting reliable data from the workers. Collecting less structured data from workers is potentially very productive but requires the anticipation, avoidance, or negotiation of the challenges. Future work is necessary to better understand these challenges across different methods and settings, as well as to test and identify strategies to address them.

Poster Presentation

Musculoskeletal

0440 SHOULDER REPETITIVENESS EXPOSURE THRESHOLD DETECTION USING ADJUSTED HAZARD MULTIVARIATE PARAMETRIC MODELLING FOR CUMULATIVE TRAUMA DISORDERS (CTD) PREVENTION AND CAUSAL ASSESSMENT

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Background Cumulative-Trauma Disorders are major loss causes in labour environments through the world, but few is known about quantitative workload exposure limits. The aim of this research was to define shoulder repetitiveness exposure threshold by assessing the risk of rotator cuff, biceps and bursal injuries in a cohort of workers.

Methods A retrospective cohort study was assembled with workers from different positions. Inclusion/exclusion criteria were rigorously applied. Clinical variables were extracted from each worker clinic history; dependent variable was obtained using NMR, ultrasound and/or surgical reports. Shoulders workload was assessed independently getting cumulative exposure time to repetitive motions adjusting by rest/break periods and other covariates, controlling confusing effects. The exposure threshold was acquired using the "David's cheese bread" method with an adjusted multivariate Weibull regression modelling, previously adopting Akaike Criterion. A Huber's M-estimator was performed warranting robust estimators for correcting both shoulders non-completely independent measures (two shoulders by worker). Final model was built according with Hosmer-Lemeshow-May's covariates purposeful selection principles.

Findings/conclusions 328 workers (656 shoulders) were included (95,8% sample power). At following-end, following span median was 21.6 years, age median was 42 years, 60% were women, 85% had non-university academic level and 77% had non-administrative positions. Age, handedness, academic level, work type and mood disorders were proved as significant or as confounding covariates within the final model. Cumulative 4×10^3 effective working hours for shoulder repetitiveness exposure was established as threshold with adjusted HRR=1.93 (95%CI 1.04–3.59). No worker should be exposed more than that threshold in order to eliminate shoulder's CTD.

Oral Presentation

Pesticides

0441 EXPOSURE TO DINITROANILINES AND RISK OF LUNG CANCER (LC) BY SUBTYPES: RESULTS FROM THE AGRICAN COHORT

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Introduction 2,6-Dinitroanilines included 15 herbicides, some of which are still used on a wide range of crops worldwide and in France, especially pendimethalin which was given special attention by the IARC. The aim of our analyses was to estimate the associations between LC and exposure to pendimethalin, benfluralin, butralin, ethalfluralin, nitratin, oryzalin, trifluralin -all once or still authorised in France-, in the French AGRiculture and CANcer (AGRICAN) cohort.

Methods More than 1 80 000 people affiliated for at least 3 years to the agricultural health insurance scheme were enrolled between 2005 and 2007. A total of 563 incident LC were identified from enrollment to 2011. Data on crop exposure during lifetime (13 crops, specific tasks including pesticide use) were collected. The evaluation of potential exposure to each dinitroaniline relied on a specific crop-exposure matrix, PESTIMAT. Analyses were adjusted on smoking history, involvement in cattle and horse breeding, peas growing, exposure to farming activities during childhood.

Results In the population, 16 533 people (11.2% of the cohort) were potentially exposed to one or more dinitroanilines. Pendimethalin and trifluralin were the most frequently used, but not associated to any increased risk of LC, nor was exposure to dinitroanilines in general. We observed an increased risk of adenocarcinoma for oryzalin exposure (HR=2.93[1.13–7.59], n=5 exposed cases), but with no linear effect with duration.

Conclusion We did not found any increased risk of LC among pendimethalin users. Our results suggest a possible association of lung adenocarcinoma with oryzalin, currently authorised in France, especially on the vineyard.

Poster Presentation

Neurological Effects

0442 OCCUPATIONAL EXPOSURES AND PARKINSONISM AMONG WOMEN TEXTILE WORKERS IN SHANGHAI, CHINA

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Objective To examine the association of endotoxin and other occupational exposures with parkinsonism (PS) severity and progression of PS signs.

Methods Movement disorder specialists examined 823 retired female textile workers ages 51–86 in Shanghai, China for PS prevalence and assessment of Unified Parkinson Disease Rating Scale motor subsection part 3 (UPDRS3). Most (n=669) were re-evaluated two years later. Occupational exposures to endotoxin, metals, solvents, magnetic fields, and shiftwork during a mean of 24 years working in the textile industry were assessed from detailed work histories and a job exposure matrix. We examined the association between each exposure and PS, severity (UPDRS3 score), and progression (annual change in UPDRS3) with multivariable regression models adjusting for age, smoking, and examiner.

Results We observed 39 prevalent PS cases and 784 non-cases. No association was observed between endotoxin and PS prevalence, disease severity, or disease progression. The other chemical occupational exposures and magnetic fields also had no associations with PS prevalence or disease severity. Shiftwork was marginally positively associated with disease progression. For each year of shiftwork as of the baseline exam, UPDRS3 score increased annually by an additional 0.047 (95% CI: -0.003, 0.097).

Conclusions We observed little evidence for an association between endotoxin and other occupational exposures with PS in this cohort of textile industry workers, although we are unable to rule out the possibility of clinically modest increases in progression among workers who had experienced several years of shiftwork.