Respiratory effects/Diseases

**0-118 RETROSPECTIVE EXPOSURE ASSESSMENT AND MI RNA IN THE EXHALED BREATH CONDENSATE IN MONITORING PAST EXPOSURE TO ASBESTOS**

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**Introduction** Currently, the health surveillance of past exposure to asbestos conveys scarce hope of improving life expectancy and quality. To uplift the screening capability, we validated our retrospective exposure assessment techniques and explored the feasibility of using the miRNA profile in the exhaled breath condensate (EBC) as a biomarker.

**Material and Methods** We first classified lung fibrosis in the chest HRCT scans of 115 workers formerly exposed to asbestos and retrospectively estimated their exposure. We also assessed past exposure to asbestos and its correlation with the fibre count in the autopic lung of 24 subjects who died from asbestos-related diseases. Finally, we used an NGS platform to detect miRNAs previously linked to lung cancer and pleural mesothelioma in the EBC of six subjects with no history of past exposure to asbestos. Parenchymal lung alterations showed up in relation to estimates of past asbestos exposure much lower than previously thought. EBC sampling is a non-invasive, easily repeatable method to monitor the miRNA profile. It might be profitably used to detect early treatable effects even in subjects with low-level exposure to asbestos.

**Conclusions** This analysis confirms the association between low dose, low dose-rate radiation and leukemias, and strengthens the evidence base supporting the radiogenic nature of some solid cancers. The extended follow-up, individual dosimetry, and precise estimates provided by this large pooled analysis can better inform current radiological protection models.

**Semi-plenary symposium**

**0-120 WHAT ORIGINATES SO DIFFERENT INTERPRETATIONS OF THE RESULTS OF STUDIES ON GLYPHOSATE AND NON-HODGKIN’S LYMPHOMA?**

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**Introduction** The overall epidemiological evidence on the risk of non-Hodgkin’s Lymphoma and occupational exposure to glyphosate has led to opposite interpretations. This presentation will discuss the reasons for such inconsistent opinions.

**Material and Methods** We conducted a new meta-analysis of the original case-control studies and compared its results with five other meta-analyses, and three pooled analyses.

**Results** Four meta-analyses and two pooled analyses of case-control studies concluded for an association between the risk of NHL and ever exposure to glyphosate. Those reaching opposite conclusions were two and one, respectively. Associations were stronger between specific NHL subtypes and prolonged/lagged exposure. In the Agricultural Study, the risk of a few NHL subtypes, but not NHL overall, tended to increase by intensity weighted lifetime days of exposure to glyphosate lagged 20 years. In the meta-analysis of the original case-control studies, including the recently published InterLymph study and a new Italian case-control study, the random estimate for ever-exposure to NHL was 1.4 (95% CI 1.08–1.81), based on six studies, and that for follicular lymphoma was 1.6 (95% CI 1.08–2.44), based on three studies, with no significant heterogeneity detect across studies. Risk of follicular lymphoma increased with exposure lagged 10 years, but not by the duration of exposure, in the InterLymph study, and by intensity, frequency, and probability but not duration of exposure in the new Italian case-control study.

**Conclusions** The dilution of the potentially associated B-cell lymphoma subtypes within the generic NHL definition, and the difficulty in isolating the few severely exposed to glyphosate from the large ever-exposed category, might account for missing the association in the AHS study and in the two negative case-control studies. The upward trends in risk for several NHL subtypes with different exposure metrics lend credibility to the association.

**COVID 19**

**0-122 PUBLIC TRANSPORT WORKERS AND COVID-19 RISK: A COHORT STUDY IN ITALY**

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**Introduction** Public transport workers have never stopped working during the COVID-19 pandemic. Despite the high...
CONTRIBUTION OF OCCUPATIONAL RISK FACTORS TO 7-YEAR FOLLOWUP IN A YOUNG ADULT POPULATION

Health disparities

0-131 CONTRIBUTION OF OCCUPATIONAL RISK FACTORS TO LIFESPAN INEQUALITIES ACROSS SOCIO-OCCUPATIONAL GROUPS IN FRANCE

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Introduction and Objective Occupational risk factors can mediate the effect of socioeconomic status on mortality; however, the reduction in social disparities in mortality that could be achieved by modifying employment and working conditions has been under-studied. Our aim was to quantify the role of occupational risk factors (lack of job control, job insecurity, and unemployment; and in men only: occupational physical activity (OPA)) in producing socio-occupational inequalities in lifespan among the French population.

Methods We reviewed the literature on 75 occupational risk factors and selected four of them with a robust all-cause mortality effect size. We used the Health and Career Path survey (SIP-2006) to estimate differential exposures in each French socio-occupational group (SOG) by sex. Then, using the life tables published by The French Institute of Statistics and Economic Studies and developing a method based on population attributable fractions, we estimated loss in life expectancy attributed to workplace exposures by SOG and sex.

Results Based on life expectancy estimated at age 35 and depending on SOG, from one to three years of life lost for men, and from 0.6 to two years for women are attributed to a combination of high OPA, low job control, job insecurity, and unemployment compared to those who had low OPA, high job control, no concerns about job loss and were employed. The difference in life expectancy at age 35 between senior executives and manual workers would have been reduced from 6.3 to 4.4 years for men and from 3.2 to 2.2 years for women if socio-occupational exposures had been set at the theoretical minimum level for the four risk factors.

Conclusions Our results, although based on a limited number of workplace factors due to large data gaps, show that improving employment and working conditions would substantially lessen social inequalities in life expectancies.

Occupational epidemiology in unorganised sectors: agriculture, construction, service sectors

O-132 7-YEAR FOLLOWUP IN A YOUNG ADULT POPULATION AT RISK OF MESOAMERICAN NEPHROPATHY

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A110

Introduction Mesoamerican Nephropathy is a leading contributor to premature mortality in Central America, but the primary cause remains unclear. Early disease is challenging to identify given variation in eGFR both within and between healthy individuals and absence of haematuria or proteinuria. We explored the incidence of CKD (stage 3–5) as well as evidence of early kidney injury in the at-risk population from Northwest Nicaragua.

Method We conducted a community-based longitudinal study of two cohorts of adults aged 18–30 (n=351 and 420) over 7- and 3-years respectively. We estimated the time point of departure from a healthy eGFR distribution to indirectly capture timing of early kidney injury. We then examined exposure associations with (i) time to CKD and (ii) early kidney injury.

Result CKD occurred in men only (male incidence rates of 0.8%/year and 0.6%/year in the two cohorts). 53 men (14%) and 8 women (3%) developed early kidney injury. Cumulative time in sugarcane work and symptoms of excess occupational sun exposure associated with incident CKD. Measured and self-reported weight loss, nausea, vomiting and cramps along with excess occupational sun exposure and non-steroidal anti-inflammatory use associated with early kidney injury.

Conclusion The burden of CKD in this population is high and risk factors for established disease are occupational. A clinical syndrome suggesting an alternative exposure is associated with COVID-19 risk are scarce.

Material and Methods We aimed to fill in this knowledge gap by investigating a cohort of over 2,000 employees of the Regional public transport sector in Sardinia, Italy. Incident COVID-19 cases were identified between 1 September 2020 – 6 May 2021 by real-time reverse transcription-polymerase chain reaction tests performed on nasopharyngeal swabs during periodic occupational health surveillance. We applied the age- and gender-specific COVID-19 incidence rates in the regional population at the same time frame to the corresponding strata of the study cohort to calculate the expected COVID-19 events. Age- and gender-adjusted relative risks (RRs) of COVID-19 and relative 95% confidence intervals (95% CIs) were estimated as the ratio between the observed and the expected events for the overall cohort and in two sub-cohorts: bus drivers and the rest of the workers (including administrative staff).

Results Male bus drivers showed an increased COVID-19 risk (RR = 1.4, 95% C.I. 1.07 – 1.79). There was no excess risk among the rest of the personnel. Women were too few to allow reliable risk estimates.

Conclusions Our study suggests an excess risk of COVID-19 among bus drivers even in a relatively low incidence area, which could imply inadequacy of occupational preventive measures. Further larger studies, with detailed information on occupational and personal determinants, are warranted to disentangle the underlying causal factors and focus preventive strategies.