Objective Shift work and risk of cardiovascular diseases (CVD) have been investigated during many decades. The evidence is, however, still conflicting. This study aims to examine whether shift work among Danish female nurses is associated with the risk of CVD.
Methods 28 731 women from the Danish Nurse cohort (>44 years old at recruitment in 1993 or 1999), who reported information on shift work (day, evening, night or rotating), were linked to the Danish National Patient Register, to obtain information on CVD (ICD-10: I00-99; ICD-8: 390–458) hospital contacts (emergency, in- or outpatient) from 1978 until August 2015. We used Cox regression models to examine the association between shift work and the incidence of CVD, defined as the first-ever hospital contact for CVD after cohort baseline, adjusting for the most important risk factors.
Results Of 16 086 nurses without previous CVD events at baseline, 5504 developed CVD during a mean follow-up of 16 years, with an incidence rate of 21.4 cases per 1000 person-years. 63.4% of the nurses reported day work as their primary work schedule, while 10.0%, 5.3% and 21.6% worked in evening, night and rotating shifts, respectively. We found no associations between shift work and the risk of CVD when compared to day workers, with hazard ratio of 0.99 (95% confidence interval 0.91–1.09) for evening, 1.01 (0.90–1.13) for night and 1.03 (0.96–1.10) for rotating shifts, in the fully adjusted model.
Conclusion We found no evidence of an increased risk of CVD among female shift workers.

Oral Presentation

Musculoskeletal

0248 REVERSIBLE MEDIAN NERVE IMPAIRMENT AFTER THREE WEEKS OF REPETITIVE WORK

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Objectives To evaluate the development of median nerve affection in relation to hand-intensive seasonal work. We hypothesised that at end-season, median nerve conduction would be impaired and then recover within weeks.
Methods Using nerve conduction studies (NCS), we examined median nerve affection before, during, and after engaging in 22 days of mink skinning. We used technical measurements (goniometry and surface electromyography) to characterise occupational mechanical exposures and obtained questionnaire information on symptoms, disability, and lifestyle factors.
Results 11 male mink skinners without median nerve affection at pre-season were included (mean age: 35.7, mean number of seasons with skinning: 8.9). Mink skinning was characterised by a median angle of wrist flexion/extension of 16° extension, a median velocity of wrist flexion/extension of 22 °/s, and force exertions of 11% of maximal voluntary electrical activity. At end-season, mean distal motor latency (DML) had increased 0.41 ms ($p<0.001$), mean sensory nerve conduction velocity (SNCV) digit 2 had decreased 6.3 m/s ($p=0.004$), and mean SNCV digit 3 had decreased 6.2 m/s ($p=0.01$); 9 had decreases in nerve conduction, 5 fulfilled electrodiagnostic criteria, and 4 fulfilled electrodiagnostic and clinical criteria (a positive Katz hand diagram) for carpal tunnel syndrome (CTS). Three to six weeks post-season, the changes had reverted to normal. Symptom and disability scores showed corresponding changes.
Conclusions In this natural experiment, impaired median nerve conduction developed during 22 days of repetitive industrial work with moderate wrist postures and limited force exertion. Recovery occurred within 3–6 weeks post-season.

Poster Presentation

Exposure Assessment

0249 JOB-EXPOSURE MATRIX FOR HISTORICAL EXPOSURE TO RUBBER DUST, RUBBER FUMES, AND N-NITROSAMINES IN THE BRITISH RUBBER INDUSTRY

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In 1982 IARC concluded that there was sufficient evidence for a causal association between occupational exposures in the rubber manufacturing industry and urinary bladder cancer and leukaemia. To enable evaluations of exposure-response associations in a cohort of men age 35+ employed in the British rubber industry in 1967 with a 49 year mortality followup (n=40,867), we created a quantitative historical job-exposure matrix (JEM) covering the period 1915–2000 based on personal and area measurements previously collated within the EU-EXASRUB project for rubber dust (n=4,187), rubber fumes (n=3,852), and n-Nitrosamines (n=10,215). These data were modelled by job function using linear mixed-effects models with sample year and industry sector as explanatory factors and a random factory intercept.

Variations in exposure levels over time between compounds and department were observed. For example, rubber dust exposures ranged from −8.8%/yr (crude materials and mixing, $p<0.001$) to +0.5%/yr (curing, $p=0.01$) while rubber fumes exposures declined between −8.3%/yr (crude materials and mixing, $p<0.001$) and −0.2%/yr (finishing, assembly, and miscellaneous, $p=0.218$).

JEM-estimates were linked to all cohort members for each year worked to calculate average annual and lifetime cumulative exposures (AAE, LCE), thereby allowing quantitative evaluation of exposure-response associations between 50 year occupational exposure and cancer mortality. AAE rubber dust exposures ranged between 0.3 mg/m3 (curing) and 36.3 mg/m3 (crude materials and mixing). Rubber fumes exposures range between 0.3 mg/m3 (finishing, assembly, and miscellaneous) and 5.4 mg/m3 (crude materials and mixing). LCE trends mirrored AAE results.