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: 100-99; 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, 5,004 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.

Poster Presentation

Exposure Assessment

Abstracts

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, assembling, 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, assembling, and miscellaneous) and 5.4 mg/m³ (crude materials and mixing). LCE trends mirrored AAE results.