

Oral Presentation

Shift Work

0125

SHIFT WORK, CHRONOTYPE AND THE RISK OF CARDIOMETABOLIC DISTURBANCES

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Introduction Shift work has been associated with cardiometabolic risk factors, but the relation is not clear for all risk factors, and the role of chronotype is largely unknown. We examined associations between shift work and cardiometabolic risk factors, and explored these associations in different chronotypes.

Methods Risk factors (anthropometry, blood pressure, lipids, glucose, gamma-glutamyltransferase, C-reactive protein, uric acid, and glomerular filtration rate) were assessed among 7768 adults in 1987–1991, with repeated measurements every five years. In the ongoing 6th examination wave data on shift work history have been collected, with data from 2013–2015 being available. In 2016, linear mixed models and logistic generalised estimating equations were used to estimate associations between shift work and risk factors one year later.

Results Shift workers had more often overweight (OR: 1.44, 95% CI: 1.06–1.95) and a higher body mass index (BMI) (β : 0.56 kg/m², 95% CI: 0.10–1.03) than day workers. A significant difference in BMI between day and shift workers was observed among evening chronotypes (β : 0.97 kg/m², 95% CI: 0.21–1.73), but not among morning chronotypes (β : 0.04 kg/m², 95% CI: –0.85–0.93). No other significant associations between shift work and risk factors were found in the chronotype strata, except for glucose among intermediate chronotypes (β : –0.36, 95% CI: –0.62–0.11). No differences by frequency of night shifts and duration of shift work were observed.

Conclusions Shift workers, in particular evening chronotypes, have a higher risk of overweight than day workers. More research is however needed to verify our results, and establish whether tailored interventions by chronotype are wanted.

Oral Presentation

Policy/Impact

0126

OCCUPATIONAL BURDEN ESTIMATION: IS IT HAVING ANY IMPACT?

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Introduction Several recent occupational burden estimation studies have identified major risk factors contributing to important morbidity burdens. This paper discusses their impact.

Methods European studies include (1) the British occupational cancer burden study and (2) an EU socio-economic health impact assessment of introducing binding occupational exposure limits (OEL) for 25 workplace carcinogens. The global burden of occupational disease project (3) includes estimation for carcinogens, asthmagens, particulate matter, noise, and risk factors for low back pain and injury.

Results The British study (1) has informed the Health and Safety Executive's long latency programme and their guidance and practical interventions for risk reduction. The results have facilitated estimation of the financial impact of these cancers; the majority of the cost is borne by workers. It has also contributed to the successful Institution for Occupational Safety and Health 'No time to lose' campaigns to help industry to deliver effective workplace cancer prevention programmes.

The EU study (2) illustrates the use of cost/benefit analyses in OEL decision making processes. 'Efficient' cost/benefit ratios and 'disproportionate' compliance costs to small/medium sized enterprises are weighed against health-based predictions.

The global burden study (3) highlights inequalities in work-related disease burden between countries.

Discussion Occupational burden studies increase awareness of occupational disease generally and for particular diseases and galvanise different stakeholders to work together on prevention. They highlight potential inequalities to different sectors of society. However, they can be 'burdensome' regarding cost and effort and debate is needed on timing of and appropriate methods for future updates.

Oral Presentation

Other

0127

IF HEAVY LIFTING CAUSES RETINAL DETACHMENT, WHAT IS THE MECHANISM? IMPLICATIONS OF PATHOPHYSIOLOGY FOR EPIDEMIOLOGY

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Objectives Two epidemiologic studies have found evidence of increasing risk of retinal detachment (RD) with increasing occupational lifting and related physical efforts. Beyond case reports, there is little evidence to explain this association. We hypothesise two alternative mechanisms and explore their implications for epidemiology.

Methods Through literature review and discussions with retinologists, we developed hypotheses that predict different etiologic time windows for an effect of lifting on RD. The role of myopia in RD is better-understood, and provides important clues about possible roles of physical activity. Inter-ocular pressure (IOP) is likely to play a mediating role, and there are experimental studies of the effects of physical activity on IOP that may also provide useful evidence for understanding RD.

Results and Conclusions *Hypothesis 1*: brief increases in IOP caused by lifting increase the risk of retinal tears during posterior vitreous detachment (PVD) - a normal ageing process. This suggests that there may be an elevated risk of retinal tear in the weeks following PVD. If this is correct, lifting