Oral Presentation

Shift Work

0333 NIGHT SHIFT WORK AND BREAST CANCER RISK: A COMBINED ANALYSIS OF POPULATION-BASED CASE-CONTROL STUDIES WITH COMPLETE WORK HISTORIES

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In 2007, IARC classified "shift work that involves circadian disruption" as probably carcinogenic to humans. To date, the evidence that night shift work increases the risk of breast cancer remains limited, partly because exposure to night work is defined differently across studies. To overcome this limitation, we created a single harmonised dataset using a common definition of night work from 5 major population-based case-control studies on breast cancer in Australia, Canada, France, Germany, and Spain.

The dataset included 6000 breast cancer cases and 7000 population controls. Any job held during work history that included at least 3 hours between midnight and 5 am was classified as night work. Lifetime duration of night work, frequency (nights/week), and night shift length (hours) were used as the main exposure variables.

In pre-menopausal women who ever worked at night the pooled OR was 1.23 [1.03–1.47]. The OR increased to 1.75 [1.17–2.62] in premenopausal women who worked at least 3 nights/week and 1.33 [1.05–1.70] for night shifts$\geq$10 hours. The OR did not increase with the number of years of night work, but women who worked $\geq$3 nights/week for $\geq$10 years had an OR of 2.58 [1.05–6.36]. No association emerged from the data in post-menopausal women. No statistically significant heterogeneity between studies was observed.

Our results support the hypothesis that night work increases breast cancer risk, particularly in pre-menopausal who worked at least 3 nights per week. The absence of an association in post-menopausal women needs further scrutiny.

Poster Presentation

Chemicals

0335 TNF-α GENE POLYMORPHISMS MAY BE ASSOCIATED WITH INTERACTIVE EFFECTS OF BLOOD MULTI-ELEMENTS IN METAL INDUSTRIAL WORKERS

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Chronic exposure to metals or toxic elements may contribute to many diseases. Lead (Pb), cadmium (Cd), and arsenic (As) were toxic agents in the environment. Selenium (Se), cobalt (Co), copper (Cu), and zinc (Zn) are essential trace elements for human, but they may do harm to health beyond normal concentrations. The interactions among multiple elements are complicated and remain unclear. Toxic elements may cause a threat through inflammation. Tumour necrosis factor-α (TNF-α) is an important mediator of inflammation, and several single nucleotide polymorphisms (SNPs) have been identified in the human TNF gene promoter. Our aim is to analyse how TNF-α gene polymorphisms and multi-elements interaction influence serum TNF-α level. A total of 462 metal industrial workers who have received health examination in Kaohsiung Medical University Hospital were recruited. The blood samples were sent for biochemical analyses, TNF-α genotype analyses (−238G>A, −308G>A, −857C>T, −863C>A, −1031T>C), and measurement of blood multi-elements concentrations (Pb, Cd, As, Se, Co, Cu, Zn) and serum TNF-α level. Mixed-effect models were used for analysing complex interactions of multi-elements and multiple TNF-α SNPs. All elements have positive correlation with serum TNF-α level, and the effects may be modified by TNF-α gene polymorphisms. Interactions between TNF-α gene polymorphisms and multi-elements may influence serum TNF-α level. We suggest that the workers with susceptible TNF-α genotypes which may induce higher serum TNF-α level should pay more attention to metal toxicity.

Oral Presentation

Ageing Workforce

0336 IMPACT OF JOB GROUP ON RISK OF RETIREMENT IN DENMARK 1980–2012

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