COMPARATIVE STUDY OF SHIFT WORK EFFECTS AND INJURIES AMONG NURSES WORKING IN ROTATING NIGHT SHIFT & DAY SHIFT IN INDIA

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Introduction Shift work can have an impact on the physical and psychological well-being of the health care worker. The impact can be manifold in developing countries like India, where health sector already suffers due to the poor doctor: nurse and nurse: population ratio. This study was conducted to compare the health outcomes and injuries, along with associated risk factors between the nurses working in Rotating Night Shift (RNS) as compared to Day Shift only (DS).

Methods It was a cross-sectional study conducted from June to November 2016 in a tertiary care hospital of Delhi. It involved 275 nurses working in rotating night shift and 275 nurses from day shift of various departments, selected through simple random sampling. Standard Shift Work Index Questionnaire (SSI) was used as the study instrument, with selected variables (according to objectives of the study). Data were analysed using descriptive statistics, chi-square, t-test and multivariate regression.

Result The nurses working in rotating night shifts were found to have significantly lower mean scores in job satisfaction (p=0.04), sleep (p<0.001) and psychological well-being (p=0.047) as compared to day shift workers. Working on a contractual basis, rotating night shift and living outside the hospital campus were associated with higher odds of having needle stick injury (NSI).

Discussion This study revealed some modifiable targets for improving shift work adaptation, e.g sleep, job satisfaction and general health. These can be modified by including appropriate interventions in their training itself, such as behavioural changes for good sleep hygiene, counselling and periodic screening. Prevention of needle stick injuries is the best strategy, but setting up of adequate surveillance mechanism in every hospital is also necessary. Fixed timing and duration of duty hours in case of rotating shifts can also contribute to lesser human errors and better job satisfaction.

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PHYSICAL WORKLOAD EXPOSURE THRESHOLD IN CUMULATIVE-TRAUMA DISORDERS USEFUL FOR PRIMARY PREVENTION AND FOR CAUSAL ASSESSMENT: A 12.5 Y FOLLOW-UP COHORT STUDY

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Introduction Cumulative-Trauma Disorders (CTD) are major loss causes in labour environments through the world, but few is known about quantitative robust and reliable workload exposure limits. The aim of this research was to define shoulder repetitiveness exposure threshold by assessing the risk of rotator cuff, biceps and bursal injuries (dependent variable) in a cohort of workers.

Methods A retrospective cohort study was assembled with workers from different positions. Inclusion/exclusion criteria were rigorously applied. Clinical and sociodemographic variables were extracted from each worker’s clinic history (age, sex, handedness, civil status, academic level, menopause, mood disorders, hyperglycemia, hyperuricemia, and abnormal globular-sedimentation velocity, rheumatoid factor, reactive-c protein, thyroid-stimulating hormone and anti-nuclear antibodies). Dependent variable was obtained using nuclear magnetic resonance, ultrasound and/or surgical reports. Shoulders workload was assessed independently getting cumulative-exposure time to repetitive motions, which was adjusted by rest/break periods, maternity/paternity leave, vacations and all-causes medical absences (effective cumulative-exposure time). The exposure threshold was acquired using an adjusted multivariate Weibull regression modelling in order to control confusing effects. A Huber’s M-estimator was performed warranting robust results, correcting both shoulders non-completely independent measures (two shoulders by worker).

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MIGRANT WORKERS AND OCCUPATIONAL HEALTH IN NORWAY: A PROFILE

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Introduction Norway has since 2006 experienced, an increase in migrant workers. Migrant workers are providing a valuable labour force that is contributing to the economy. But, there are several challenges that these workers face with regards to occupational health. We have limited data on migrant workers, and aim to provide a profile of occupational health challenges as they concern these workers.
RESULTS

656 shoulder workloads were analysed. At following-end, following-span median was 12.5 years, age median was 42 years, 60% were women, 85% had non-university academic level and 77% had non-administrative positions. Age, handedness, academic level, work type and mood disorders were proved as significant or as confounding covariates within the final model. 4 × 10⁶ cumulative-effective working hours of shoulder repetitiveness exposure was established clearly as threshold (adjusted HR = 1.93; 95% CI: 1.04 to 3.59).

DISCUSSION

Taking real action in developing world should be addressed towards effective primary prevention, which means that no worker should be exposed more than repetitiveness threshold, in order to eliminate shoulder’s CTD. On the other hand, proved threshold overpassing shall confirm work-related causation in injured workers within compensation processes.

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ASSESSMENT OF HUMAN EXPOSURE TO 1-NITROPYRENE BY MEANS OF THE DETERMINATION OF HYDROXYNITROPYRENES IN 896 URINE SAMPLES

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INTRODUCTION

Polycyclic aromatic hydrocarbons (PAHs) are ubiquitous organic pollutants, whose sources include traffic emissions derived from diesel/gasoline vehicles. Monohydroxylated PAHs (OH-PAHs), urinary metabolites of PAHs, were used as biomarkers of PAHs exposure. 1-Nitropyrene is a molecular marker for diesel exhaust, a significant contributor to the toxicity associated with particulate matter. Urinary metabolites of 1-Nitropyrene were recently evaluated for their utility as markers of exposure to diesel exhaust.

METHODS

Among the three isomers 3-, 6-, and 8-hydroxy-nitropyrene (3-, 6-, 8-OHNPy), 6-OHNPy was selected for this study as it is the most abundant found in human urine. 896 urine samples were collected from subjects randomly selected from municipality registers of Civitavecchia (Central Italy) as a part of the ABC Human Biomonitoring study and tested after enzymatic hydrolysis of the glucuronic acid conjugates using HPLC-MS/MS. Pure standard of 6-OHNPy was purchased following custom synthesis and deuterium labelled 1-hydroxypyrene was used as internal standard for quantitative determination.

RESULT

Results show that more than 50% of the 896 samples did not contain detectable concentrations of total hydroxy-nitropyrenes measured as 6-OHNPy (<0.0005 μg/g of creatinine), while 383 samples showed measurable levels, in the range 3.81–0.0005 μg/g of creatinine. Mean value is 0.091 μg/g of creatinine.

DISCUSSION

This is the first large study reporting urinary levels of 6-hydroxynitropyrene in subjects non-occupationally exposed to 1-nitro-pyrene. Previous studies showed that this biomarker is scarcely influenced by smoking. As the performances of the method allow environmental exposure assessment, where high sensitivity is needed, it can be used with even greater confidence for studies of occupational exposure assessment to diesel exhaust, where higher exposure levels are expected: the urinary levels here reported can be considered as reference values to be compared to the levels produced by occupational exposures.