TOR VERGATA
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Dottoranda: Dott.ssa Debora Rosa

Tutor: Prof.ssa Anne Destrebecq

Titolo tesi: Characteristics of nursing work as risk factors for metabolic syndrome

ABSTRACT

Background

Metabolic syndrome has been defined in several ways. All definitions include the modification of glucose and lipidic metabolism, insulin resistance, high blood pressure and visceral obesity. Metabolic syndrome is considered to be a major threat for public health in the 21st century. People with metabolic syndrome have twice the probability to die and three times more chances of heart failure or stroke than healthy people. There is a strong relationship between being overweight or obesity and incidence of this syndrome. Regardless of the criteria used to define metabolic syndrome, the prevalence is higher in the USA and in Europe (20-40%) if compared to Asia (l0-30%). Population-based studies have shown that epidemiology and physiological characteristics of metabolic syndrome vary among different ethnic groups. Shift work is commonly used in healthcare facilities. Shift workers are defined as "those who follow the same workstation, according to a defined rotation" or: "who never have the same working hours". This type of organization is associated with many health problems caused by irregular biologic rhythms . Shift work seems a risk factor for MS, regardless of the type of organization (e.g. industry of healthcare).

Objectives

The objectives of this doctoral program are (1) to describe and critically analyse what the effects of shift work and desynchronization of circadian rhythms are on nurses' health; 2) to describe the effects of shift work on metabolic syndrome and urolithiasis; 3) study the relationship between metabolic syndrome and work related stress among nurses, determine the prevalence of MS among shift workers and diurnists using NCEP ATP III criteria, quantify metabolic syndrome-related absenteeism rates, study eating habits and mediteranean diet adherence among nurses.

Methods

In order to respond to the first aim a systematic review was performed. Databases analised was: PubMed, Cinahl, Scopus, Embase and Ilisi. Search terms (free terms, MeSH): "nurses", "shiftwork", "nightwork", "sleep disorder, circadian rhythm", "work schedule tolerance", "breast neoplasm", "metabolic syndrome X", "metabolic cardiovascular syndrome ", "cardiovascular disease"," stress "," diabetes ". We included all randomized controlled trials (RCTs), observational study, review and we included paper studying nurses shift workers. Quality assessment of the retrieved papers was verified according to Dixon-Woods checklist.

For the second aim was conducted a review by two independent authors, according to PRISMA reporting guidelines. Electronic databases were used: PubMed, CINAHL, Embase and Cochrane Database of Systematic Review. Search terms (free terms, MeSH): "metabolic syndrome", "urologic diseases"; papers published in the last 10 years (2009–19) were searched. Totally, 1215 articles were obtained, and 7 out of them were relevant and therefore were analyzed. We included all randomized controlled trials, observational studies, reviews. Quality assessment was performed according to the checklist by Dixon-Woods et al.. For the last aim The first step was to create and validate a questionnaire to investigate the prevalence of metabolic syndrome among Italian nurses. The second step was to

estimate the risk of work- related stress. Data regarding absenteeism and turnover will be collected, as indicators of impact on organization.

Results

In the first study 24 articles were analyzed. Literature review showed that shift work involves an alteration in psychophysical homeostasis, with a decrease in performance. It is an obstacle for social and family relationships, as well as a risk factor for stress, sleep disorders, metabolic disorders, diabetes, cardio vascular disorders and breast cancer. In the second study 8 articles were analyzed and the results showed that the increase in urinary acidity in subjects with metabolic syndrome is mainly due to dietary habits (introduction of proteins and animal salts, decrease of alkalis in the diet). In addition, a more acidic urinary load caused by the diet would reduce the amount of urinary citrate, an important inhibitor of kidney stone formation. Shift work and its resultant sleep deprivation, were also associated with a higher BMI, less physical activity, lower dietary quality score, a higher prevalence of hypertension, a high risk of diabetes, metabolic syndrome and insulin resistance. The last study is the first to investigate the previously describe shift work's factors and their impact on organizing nursing work.

Conclusion

This doctoral program has allowed us to understand that an organized ergonomic turnaround can be less detrimental to the health of nurses and more beneficial for the healthcare providers. In addition higher BMI, less physical activity, lower dietary quality score, hypertension, diabetes, metabolic syndrome and insulin resistance are all factors that favor the development of urolithiasis. Therefore, it is not to be underestimated that many nurses are at risk of developing urolithiasis with consequent days of illness. The prospective study is relevant for the organizations because it helps to define organizational strategies that permit nurses to remain healthy, to be work efficient and therefore to be able to provide high level care. Keywords

Breast cancer, cardio vascular disease, circadian rhythm, diabetes, eating habits, hypertension, insulin resistance, life habits, mediteranean diet, metabolic syndrome, nurse, obesity, physical activity, shift work, sleep disordes, urolithiasis,work related stress,.