Night beat, overtime and a disrupted sleep pattern can harm officers' health

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A police officer who works the night shift, typically from 8 p.m. to 4 a.m., already is at a disadvantage when it comes to getting a good "night's" sleep.

Add frequent overtime to that schedule, and an officer may be climbing into bed as the sun comes up, setting the stage for short and unrestful slumber.

A new study published in the current issue of *Archives of Environmental & Occupational Health* (vol. 64, No. 3) shows that this combination of night work, overtime and shortened sleep can contribute to the development among police officers of the metabolic syndrome, a combination of unhealthful factors that increase the risk of cardiovascular disease (CVD), primarily heart disease and stroke.

John M. Violanti, PhD, research associate professor in UB's Department of Social and Preventive Medicine in the School of Public Health and Health Professions, is first author on the paper, and received significant contributions from biostatisticians in the CDC's National Institute for Occupational Safety and Health (NIOSH).

"These findings reinforce the scientific value of studying the effects of occupation on cardiovascular risk factors," said Violanti. "This is especially important in first responders, who are selected on initial good overall physical and mental health. Exploring specific job-related associations, such as shift work, add to the benefit of such

investigations."

The research is based on data from the Buffalo Cardio-Metabolic Occupational Police Stress (BCOPS) study, which has been ongoing since 2003. Metabolic syndrome is defined as abnormalities in any three of five important clinical measures: abdominal obesity, triglycerides, high-density lipoproteins (HDL), blood pressure and fasting glucose level.

This baseline study involved 98 police officers who were selected randomly from a total of 934 officers. Clinic personnel in UB's Center for Preventive Medicine obtained a fasting blood sample, and measured systolic and diastolic blood pressure and waist circumference, and participants also completed an extensive questionnaire on demographics and lifestyles choices.

Researchers obtained day-by-day data on shift-work and overtime hours from payroll records.

Results showed that overall, 30 percent of officers working the night shift had metabolic syndrome, compared to 21 percent in the National Health and Nutritional Examination Survey (NHANES III), which is based on data collected from the overall general population.

However, officers in the night shift were younger on average than those working the day shift -- 36.5 years vs. 42.6 years -- but despite their younger age, the percentage with metabolic syndrome (30 percent) was higher than the 24-percent average for the 30-39 age group in the general population.

"This slightly higher prevalence at a younger age coincides with police mortality cohort studies, which found a higher risk of CVD among younger officers," said Violanti. "This finding is in contrast to that in the

general population, in which CVD risk increases with age.

"One potential explanation for this unusual finding is that midnight-shift officers were most likely to be sleep deprived because of difficulties associated with day sleeping. Sleep debt has been shown to have a harmful impact on carbohydrate metabolism and endocrine function, which could contribute to metabolic disorders."

The percentages of several factors related to risk of metabolic syndrome were higher in night-shift officers than in the general population, as well as in day and evening-shift officers in the study:

- 55 percent had elevated waist circumference, compared to 50 percent and 30 percent for women and men
- 50 percent had low HDL cholesterol levels, compared to 38 percent and 35 percent in women and men, respectively.
- Hypertension and glucose intolerance, an indication of diabetes, were more prevalent in night-shift officers.

In addition, officers who worked midnight shifts and had less than six hours sleep had a significantly higher average of metabolic-syndrome components than those who worked day shifts.

"Information from this study could help guide further investigation into health of first responders," Violanti said, "not only of police officers, but firefighters, emergency medical technicians, nurses, physicians, air traffic controllers and the military.

"Results of this study, and possible future prospective studies, may add to our existing knowledge of the associations between shift work and

cardiovascular health in high-risk occupations."

Source: University at Buffalo (news : web)