Editorial

Occupational noise exposure and cardiovascular disease in male workers

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Noise is a common occupational hazard worldwide. The impact of noise on human health is emerging as an important public health issue. The most well-known effect of high noise levels at work (>85 dBA) is hearing loss that is significantly associated with the period of exposure.[1] In addition, noise exposure can cause non-auditory effects, such as sleep disturbance, annoyance, psychological stress, and cardiovascular disease (CVD). In a study among Korean blue collar workers, Won et al. found that the prevalence of CVD risk was 32 cases per 100 workers.[2] However, the relationship between occupational noise and cardiovascular disease remains unsettled.[3]

People who work in loud environments for at least one year and a half have a two- to threefold increase in prevalence of angina pectoris, myocardial infarction, coronary heart disease and isolated diastolic hypertension, especially men aged less than 50 years and current smokers.[2] One study found that workers in noisy workplaces without hearing protectors were 53% and 75% more likely to have prevalent CVD and angina, respectively.[4] However, another study found that cumulative occupational noise of more than five years did not increase the mortality risk from ischemic heart disease.[5]

CVD risk is closely linked to individual and work-related factors, including noise, job stress and chemical hazards. These occupational factors particularly affect blue collar workers, who are more likely to be exposed to hazardous work environments, occupational stressors and cigarette smoking. This may explain why male workers are at greater actual CVD risk than female workers, because most of blue collar workers are men.[3] According to the hypothesis of noise stress (as a physical stressor in the workplace) and stress physiology responses in the defense reaction, the responses of the sympathetic adrenal neuroendocrine system are normally transient. Repeated or chronic activation of the system, however, might increase blood pressure and change the structure of the heart and vessels, which are regarded as important pathophysiological changes in the development of CVD.[6]

Integrating worksite intervention, including promoting individual behavior change (such as smoking, dietary pattern, physical activity, and weight control), changing and monitoring the work environment (noise exposure, chemical hazards, psychosocial and organizational) and the family-community interface, may be synergistic to reduce CVD risk factors in the workplace. These prevention efforts require a partnership among public policymakers, employers, workers, health professionals, and the local community.[7]

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