EFFECTS OF CIGARETTE SMOKING ON HEARING LOSS IN WORKERS WITH NOISE EXPOSURE

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Objectives Previous studies found that noise and cigarette smoking are risk factors of hearing loss. This study aimed to investigate effects of cigarette smoking and other factors on hearing loss.

Methods This was a cross-sectional study of 95 machine maintenance workers with noise exposure in an electronics industry. The databases of health examination and environmental monitoring were used, and the information on demographics, years of employment, habit of cigarette smoking, hearing levels of pure tone audiometry, and levels of personal noise exposure monitoring (TWA) were assessed. There were two definitions of hearing levels, which were the mean level (mean of bilateral 3K, 4K, 6 K Hz) and the maximal level (maximum of bilateral 3K, 4K, 6 K Hz). Linear regression was applied to explore the association.

Results 60.0%, 14.7%, and 25.3% workers were never smokers, ever smokers who had quit, and current smokers, respectively. The multivariable linear regression showed that current smokers had higher mean hearing level than never smokers ($\beta$=4.54, 95% CI=-0.10–9.19); age was associated with the mean hearing level ($\beta$=0.52, 95% CI=0.25–0.79). In addition, another multivariable model showed that current smokers had higher maximal hearing level than never smokers ($\beta$=8.36, 95% CI=0.28–16.43); age was associated with the maximal hearing level ($\beta$=0.91, 95% CI=0.45–1.38). Years of employment and noise exposure levels were not associated with hearing levels. Concerning workers aged 36 years or older, subgroup analysis found that the maximal hearing levels were 25 dB (never smokers), ever smokers who had quit (30 dB), and current smokers (45 dB), which had statistical significance ($p=0.048$).

Conclusions The findings suggest that old age and current smoking were risk factors of hearing loss, and also call attention to the importance of preventing hearing loss including quitting smoking for noise exposure workers.