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Prolonged exposure to occupational noise and hypertension among workers in the aviation industry.

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Background and Objective: Several epidemiologic studies have reported that people living near airports with long-term exposure to aircraft noise had increased risk of hypertension, but such a relationship among aviation industry workers is uncertain. This cross-sectional study aimed to investigate the effects of chronic noise exposure on prevalence of hypertension among workers in the aviation industry.

Methods: We recruited an aircraft manufacturing company with 2524 employees in 2008. There were 1412 volunteers who provided personal information on health checkups and potential confounders using a standardized questionnaire. We measured noise exposure and calculated the cumulative exposure index (CEI, dBA-year) for each subject. We divided workers into high-exposure, low-exposure, and control groups according to the quartile distribution of CEIs. Logistic regression models were used to associate occupational exposure to noise with hypertension between different groups.

Results: High-exposure workers (≥ 1220 dBA-year) had the significantly highest proportion of using earplugs/earmuffs at work (46%), as opposed to 17% in the low-exposure workers (1220-870 dBA-year), compared with 12.9% in the control group (< 870 dBA-year). Only high-exposure workers had significantly lower prevalence of hypertension (21.6%) than the control group (28.5%). We also found a significant inverse association between hypertension and noise exposure with adjusted odds ratios ranging from 0.15 (95% CI=0.09-0.25) in high-exposure workers to 0.29 (95% CI=0.19-0.45) in low-exposure workers compared to the control group.

Conclusion: Our findings suggest that the implementation of guidelines for occupational noise management might have contributed to the prevention of hypertension caused by noise exposure at work.