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Occupational exposure to lead and risk of high frequencies hearing loss in adults

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Objectives: Some studies have reported that adults with occupational lead exposure can exhibit ototoxicity. Aim was to evaluate the effect of lead exposure on hearing frequencies in acid- battery manufacturing workers in Tehran.

Methods: This study was conducted in acid- battery manufacturing factory, and 609 male workers were recruited from all over the factory. Association between blood lead level and hearing frequencies were measured. Odds ratio (OR) with 95% confidence interval (95%CI) was used for comparing the proportion of risk variables.

Results: The total of 609 battery manufacturing male workers were consisting of 285(46.8%) workers with blood lead level (BLL) <40 µg/dl and 324 (53.2%) workers with BLL ≥40 µg/dl. High frequency (3, 4, 6, 8 Khz) hearing loss at hearing threshold above 25 dB in either ear was significantly more prevalent in workers with blood lead level ≥40 µg/dl (Adjusted Odds ratio=2.66, 95%CI: 1.86 - 3.80, P<0.001 and Adjusted Odds ratio=1.60, 95%CI: 1.13-2.27, P<0.008 for age and work duration respectively). Mean noise exposure level was 84.0 dBA_{Leq}.

Conclusion: Health surveillance program for lead exposed workers should include of hearing examination by audiometry even if employees whose exposure to noise is less than of TWA of 85 dB, and we suggest hearing frequencies that measure by pure tone audiometry could be a reliable marker of lead ototoxicity.

Biography

Masoumeh Ghiasvand completed her medical doctor diploma at the age of 27 years from Iran University of Medical Sciences and Occupational Medicine specialty from Tehran University of Medical Sciences. She was Vice Director for treatment in Rasul-e-Akram Hospital until 3 months ago. She has published 7 papers in international journals and she is working with international journal of MJIR as a reviewer. She has received travel fellowship award from IUTOX 2012(8CTDC).

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