

Objectives To survey the hearing problem and noise exposure of forklift drivers in a factory.

Methods A cross-sectional survey was conducted during 2011–2012 among the workers. Data was collected through periodic examination and environmental measurement. A total of 21 people participated in the study (20 males, 1 female).

Results The workers were 29–48 years of age and their working years were between 9 to 20 years with the average working time of 40 hours per week. The report of abnormal audiogram was 33.3% (7 people) and one case was later excluded after the repeated test was normal. Two cases were diagnosed with moderate to severe sensorineural hearing loss while the others (5 people) were diagnosed with mild SNHL. All of them were not concerned about ear protective equipment, nor did they utilize such equipment. The environmental measurement was done by sound level meter; Noise Dosimeter. Time weighted average level (8-hr-TWA) was still under the regulations, which were between 80.38 to 85.61dBA.

Conclusion Hearing conservative program should be provided to high risk workers even though the noise induced hearing loss was not diagnosed. The periodic examination is important to compare with baseline audiogram.

109 WORK-RELATED NOISE INDUCED HEARING LOSS CASES REPORTED BY PHYSICIANS TO THE NORWEGIAN REGISTRY OF WORK-RELATED ILLNESSES: DATA FROM 2005–2009

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Background This study provides an epidemiological profile of hearing loss cases reported to the Norwegian Labour Inspectorate (NLI) and also a distribution of cases by the notifying physician type.

Materials and Methods The study is based on obligatory physician notifications of work-related illnesses to the Norwegian Labour Inspectorate. These physician reports are the basis for the Registry of Work-related illnesses. We extracted NIHL data from this registry based on the ICD-10 codes for the period 2005–2009 (5-year period). We also obtained employment data from Statistics Norway by trade sector, gender and age. We then estimated the average number of cases reported in the period 2005–2009. Next we estimated the incidence rates for the reported cases by gender, age and trade sector. We also computed descriptive statistics for occupation and the type of notifying physician.

Results In the 5-year period, a total of 7888 cases of NIHL were reported to the NLI. On average 1577 cases of NIHL were reported. 96% of these cases were men. Incidence of reported work-related NIHL was estimated to be 66/ 100 000 workers. The incidence for reported NIHL cases was respectively 6 and 120/100 000 workers for women and men.

The highest incidence was found in age group 55–66. Cases reported from manufacturing, electricity, gas, steam, construction and mining sectors were found to have the highest incidence rates.

Occupational health physicians reported 85% of all the NIHL cases while hospital and general physicians reported 7% and 4% of the cases respectively.

Conclusions Work-related NIHL remains an extensive problem, yet an under-profiled problem in Norway. Targeted interventions

toward vulnerable groups to reduce noise exposure to vulnerable groups are necessary.

The registry of work-related illnesses is not ideal in detecting cases of NIHL because of extensive underreporting and remedial measures ought to be taken to address this issue.

110 EFFECTS OF WHOLE BODY VIBRATION ON HEARING LEVEL SHIFTS

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Background and Aim Adverse effects of occupational whole body vibration (WBV) on hearing are yet unknown. The aim of the research was to survey effects of whole body vibration on hearing shifts.

Methods Male adult New Zealand White rabbits were divided into two groups include control group (n = 6, not exposed to whole body vibration) and vibration group (n = 6, exposed to whole body vibration in the Z-axis at 4 Hz and 1.0 ms⁻² r.m.s for 8 hours per day in 5 consecutive days by putting their box on a vibrating platform). DPOAEs were measured hearing shifts in vibration group in days: zero (before exposure to vibration) as baseline, eighth (an hour after exposure to vibration) as temporary threshold shifts, and tenth (48 hours after exposure to vibration) as permanent threshold shifts. Similarly, DPOAEs were also examined hearing shifts in control group in days zero, eighth, tenth. The gathered data analysed by independent-samples T Test.

Results Increased mean DPOAEs amplitudes were observed in frequencies 375.00, 562.50, 750.00, 1125.00, 1312.50, 2062.50, 2625.00, 3937.50, 5437.50, 6562.50 Hz respectively in vibration group. There were no any significant differences between mean DPOAEs amplitudes in days zero, eighth and tenth at all frequencies (p = 0.073).

Conclusion The exposure to vibration significantly led to enhanced mean DPOAEs amplitudes at all frequencies at low frequencies rather than at high frequencies. Thus, this study showed that vibration exposure only could not cause temporary or permanent threshold shifts. Increased DPOAEs amplitudes could be probably attributed to normal outer and destroyed inner hair cells.

Session: O. Biomarker

111 PRODUCTION OF IL-10, TNF AND IL-12 BY PERIPHERAL BLOOD MONONUCLEAR CELLS IN MEXICAN WORKERS EXPOSED TO A MIXTURE OF BENZENE-TOLUENE-XYLENE

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