14th ICBEN 2023 18 - 22 JUNE BELGRADE

14th ICBEN Congress on Noise as a Public Health Problem

Exposure to whole-body vibrations and incident stroke and myocardial infarction risk in Sweden

Hans Pettersson[1], Claudia Lissåker[2], Jenny Selander[2]

[1] Section of Sustainable Health, Department of Public Health and Clinical Medicine, Umeå University, Umeå, Sweden

[2] Unit of Occupational Medicine, Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden.

Corresponding author's e-mail address: jenny.selander@ki.se

ABSTRACT

Background: Though occupational exposures have been shown to be associated with an increased risk of cardiovascular disease, little is known regarding its relationship to whole-body vibration. This study aims to elucidate this association using a national, longitudinal cohort.

Methods: Data came from the SNOW cohort of individuals living in Sweden who were born between 1930 and 1990. The cohort contains demographic, occupational, and outcome information extracted from several national registers. Only those individuals with an occupational code recorded between 1985 and 2013 were included in the study. These occupational codes were used to match to a job-exposure matrix on 8h whole-body vibrations in the following categories: unexposed, 0-0.3, 0.3-0.5, and 0.5-0.8 m/s^2. To calculate hazard ratios (HR) and 95% confidence intervals (95% CI), we used a discrete-time proportional hazards model, which was adjusted for year, age, sex, marital status, income, country of birth, and occupational exposure to noise, physical workload, decision authority, and particles, as well as stratified by sex.

Results: We found an increased risk for both MI and stroke among those exposed to 0.5-0.8 m/s^2 of whole-body vibrations (HR: 1.21 95% CI 1.16-1.26 and HR: 1.14 95% CI 1.07-1.21, respectively) after adjustment for confounders and occupational exposures. Stratified analyses showed increased risks only for men, and a non-significant association for women for stroke only.

Conclusion: Whole-body vibrations was associated with increased risks for both MI and stroke, among this younger, working population. There were too few exposed cases among women to be able to detect significant associations.

Keywords (3-6): Occupation, Whole-body vibrations, Myocardial infarction, Stroke, Register