13th Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium

April 16-17, 2015
Salt Lake City, Utah

CO-SPONSORED BY:

The Rocky Mountain Center for Occupational and Environmental Health

and

The Department of Mechanical Engineering

at the

University of Utah

FUNDED BY:
A grant from the National Institute for Occupational Safety and Health

Association between Cardiovascular Risk Factors and Carpal Tunnel Syndrome

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ABSTRACT

Background- Carpal Tunnel syndrome (CTS) is a result of median nerve entrapment or compression at the carpal tunnel of the wrist. In the U.S.A., it has an incidence of 99 per 100 000 in the general population and a prevalence between 1% and 10%. CTS plays an important role in compensation of worker's cost, lost time, lost productivity and disability.
Heart disease is the leading cause of death for both men and women. **More than half** of the deaths due to heart disease in 2009 were in men. High blood pressure, cholesterol levels, obesity, diabetes, and lack of physical activity are some of the escalating national health problems that predispose general population to CVD.
We aimed to examine the association between cardiovascular health characteristics and CTS in a large population of industrial workers.

Methods- This is a cross-sectional analysis of baseline measurements taken from a multi-center, prospective cohort study, the WISTAH Distal Upper Extremity (DUE) study. All participants were at least 18 years old, and employed at a participating facility. Participants for this study were enrolled from seventeen varying production facilities under fifteen different employers. Employees were involved in high, medium and low levels of physical job demands. All positions analyzed required a consistent level of physical job exposure.
The CTS diagnosis was self-reported. We defined cardiovascular health risk factors by the American College of Sports Medicine scale (ACSM). The scale for coronary artery disease risk factor thresholds included the following: smoking, hypertension, dyslipidemia, diabetes mellitus, Body Mass Index (BMI), physical activity. The ACSM score defined participants as follows: 1) low (male< 45 years, female <55 years, with no more than one positive factor), 2) moderate (male ≥45 years, female ≥ 55 years, and the threshold for two or more positive risk factors), or 3) high (higher coronary artery disease risk stratification. Data were analyzed using univariate logistic regression analysis.

Results-A total of 1,215 industrial workers were enrolled in the study. The mean age of the workers 42.1±1.4 years. There were 803 females and 412 males, with a mean BMI of 29.5 ±6.8 Kg/m^2. Nearly 10 percent of workers were diagnosed with CTS (n=111). Workers in the high risk ACSM category were four times more likely (OR= 4.1, 95% CI: 1.9-8.3) to have CTS than those in the low risk ACSM category. In addition, workers in the moderate risk ACSM category were twice more likely (OR=2.0, 95% CI 1.2-3.4) to have CTS than those in the low risk ACSM category.

Conclusion -We found strong associations between ACSM and CTS among industrial workers which warrant additional analyses.