Defense Health Agency (DHA) Clinical Communities Speaker Series

Resource List-August 2019

Innovations in Health Care from Centers of Excellence and Communities of Practice Groups:

Promising Practices within the Hearing Center of Excellence

The study, The Impact of Hearing Impairment and Noise-induced Hearing Injury on Quality of Life in the Active-duty Military Population: Challenges to the Study of This Issue assessed the decline in quality of life in active-duty service member populations, specifically due to hearing loss. The authors summarized the available evidence on the impact of hearing loss on quality of life (QOL) among U.S. active-duty service members, reported on their utility for studying the impact of hearing loss on QOL among active-duty service members, and provided recommendations for future studies that seek to quantify the impact of hearing loss in this population.

The article, Hidden Hearing Injury: The Emerging Science and Military Relevance of Cochlear Synaptopathy identifies noise-induced cochlear synaptopathy, and resulting auditory nerve degeneration, as an emerging research area with potentially significant relevance to military medical priorities in the prediction, prevention, and treatment of injuries in Service Members and Veterans. This phenomenon, recently described as "hidden hearing loss," was the subject of a meeting cohosted by the Department of Defense (DoD) Hearing Center of Excellence and MIT Lincoln Laboratory to consider the potential relevance of noise-related synaptopathic injury to military settings and performance, service-related injury scenarios, and military medical priorities.

The Center for Disease Control and Prevention noted occupational hearing loss as one of the most common work-related illnesses in the United States. The authors reported about 22 million U.S. workers each year are exposed to hazardous noise levels at work and over 30 million U.S. workers are exposed to chemicals, some of which are harmful to the ear (ototoxic) and hazardous to hearing. In addition to damaging workers' quality of life, occupational hearing loss carries a high economic price to society. The National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL) for occupational noise exposure is 85 decibels. Exposures at or above this level are considered hazardous. NIOSH also recommends the use of the NIOSH Hierarchy of Controls to reduce workplace noise to below the NIOSH REL whenever possible and promotes the use of hearing protection when hazardous noise levels cannot be adequately reduced.

The objective of the study, Hearing Loss Associated with US Military Combat Deployment was to define the risk of hearing loss among U.S. military members in relation to their deployment experiences. Among all 48,540 participants, 7.5% self-reported new-onset hearing loss. Self-reported hearing loss showed moderate to substantial agreement with objective audiometric measures. New-onset hearing loss was associated with combat deployment, as well as male sex and older age. Among deplorers, new-onset hearing loss was also associated with proximity to improvised explosive devices and with experiencing a combat-related head injury. The authors noted, preventive strategies should include early detection and monitoring of hearing loss, based on pre-deployment and post-deployment audiograms, to inform clinical practice guidelines, as well as development of improved hearing protection, protective head gear, and possible identification of effective otoprotectants.

References

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