

HEARING IMPLANTS FOR OLDER ADULTS WORKSHOP, NEW YORK CITY, JANUARY 2014

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The Hearing Implants in Older Adults Workshop was Med-El's second meeting on this multi-disciplinary research topic. In an exciting 1-1/2 day meeting, attended by 120 people from around the world, researchers from a range of hearing science disciplines presented data on geriatric audiology, cognition and hearing, the older brain, electrophysiology, physical and perceptual changes with age, hearing implant surgery, and outcomes as well as balance and fall risks.

The meeting started off with a lecture on "Hearing loss, dementia, and public health" by Frank Lin, Assistant Professor of ORL and Geriatrics at Johns Hopkins, who is a leading researcher in the field of hearing loss and cognition. He and his colleagues recently reported epidemiologic data demonstrating that hearing loss is independently associated with accelerated cognitive decline and an increased risk of incident dementia. In addition, cognitive decline occurs more rapidly with greater degrees of hearing loss. Hearing loss in older adults has been linked to falls, which can have devastating physical and economic repercussions and from which people may never fully recover.

Barbara Weinstein, Professor of Audiology at the City University of New York Graduate Center, emphasized that, to promote healthy aging, it is important to identify and remove barriers to hearing loss treatment. David Friedland, Professor of ORL at Medical College Wisconsin, reported that older cochlear implant recipients performed, on average, 10% poorer than younger ones on more difficult listening tasks; however, their performance was much better with their CIs than without. Dr Friedland recommended looking at the timing of hearing interventions, with earlier intervention leading to better results. René Gifford, Director of the Cochlear Implant Program at Vanderbilt, came to the same conclusion, adding that older adults show tremendous gains in quality of life. Henryk Skarzynski, Professor of Otolaryngology and Director of the Institute of Physiology and Pathology of Hearing, presented on partial deafness cochlear implantation in patients with substantial low frequency hearing prior to implantation. He concluded that the classification criteria for cochlear implantation in the elderly should be gradually extended to include individuals with better residual hearing, although hearing preservation in older patients seems to be more difficult than in those less than 65 years of age.

Difficulty in hearing may lead to the false conclusion that a patient with hearing loss has cognitive decline, when in fact they simply do not hear well enough to respond correctly on many current test measures of cognitive impairment.

Dr Vincent Lin from the Sunnybrook Health Sciences Centre in Toronto, Canada, reported on a version of the Montreal Cognitive Assessment (MoCA) for use in patients with hearing impairment (MoCA-H). Whereas MoCA is a screening tool for cognitive decline in common use throughout the world, MoCA-H aims to detect mild cognitive impairment in people who have severe to profound hearing loss.

A basic tenet of neuroplasticity is that the brain reorganizes itself following sensory deprivation. Researchers like Andrew Krall are currently evaluating exactly how hearing loss causes brain reorganization in the hope of better informing the design of interventions such as cochlear implants and related processing technology.

Music perception and appreciation have numerous cognitive and social benefits, and can also be used as a tool for brain training. Nina Kraus, Professor of Neurobiology at Northwestern University, stressed that brain training can enhance communication skills, but certain skills dissipate with time if training stops. This does not apply to music, showing that musical training in childhood positively affects speech understanding in noise with long-lasting effects, even in persons with a mild to moderate hearing loss.

Robert Labadie, an Associate Professor at Vanderbilt University, presented on positive outcomes with image-guided programming of CI recipients. Based on CT scans that indicate where current might be overlapping, potentially interfering electrodes can be deactivated. The best results in terms of subjective sound quality were gained with an average of 30% of the electrodes turned off for all three devices studied (AB 36%, Cochlear 32%, Med-El 20%), raising the question of whether today's electrode designs should be modified.

The common denominator of this meeting was that age alone is rarely a contraindication to hearing implant candidacy. Earlier intervention, likely to be done with better residual hearing and speech understanding skills, might yield better results for older adults – not only in terms of hearing but also in other health outcomes. It is well documented that hearing loss in older adults is an important public health issue that deserves attention from health care providers, public health policymakers, hearing professionals, and others. The concept that hearing treatment for older adults may produce better health outcomes beyond hearing alone has the potential to guide research agendas for years to come.