

Alzheimers Disease & Dementia

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WEBINAR

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Dementia - an auditory outlook

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According to the 2020 Lancet commission on dementia, hearing loss is the top modifiable risk factor against dementia, and risk of dementia worsens with every 10 dB of hearing loss. The commission also found an increased dementia risk for those not using hearing aids and, it recommends hearing aids to reduce the risk of cognitive decline and dementia. So, hearing loss treatment/management could be a way of significantly lowering the risk of dementia among our aged population. Hearing loss is an invisible disability and is among the top three medical chronic conditions among our aged population.

Apart from contributing to cognitive decline, hearing loss leads to social isolation, dependence on others and anxiety. Current treatments like hearing aids and cochlear implants often help improve the daily life of people with hearing loss. There is still no drug available to prevent/treat it. Recently, we have established that aldosterone – a natural occurring mineralocorticoid hormone has potential to treat certain aspects of age-related hearing loss in aging mice. Animals were treated with subcutaneous time-release pellets for four months.

A therapeutic effect was mediated via induced protein enhancement of Na-K-Cl and Na-K-ATPase – two key ion transporters that decline in the aging inner ear. Our clinical study revealed that higher serum aldosterone levels are associated with better hearing in elderly. Though not FDA-approved yet, it is likely that aldosterone will play a significant role in drug development for hearing loss. In sum, efforts to address the concerns of hearing loss – both in terms of drug development and alternative technologies for cochlear implants (i.e., new stimulation techniques), could significantly help to prevent dementia and other age linked cognitive deficits.

Biography

Parveen Bazard is a Research Scientist at the Global Center for Hearing and Speech Research, Medical Engineering Dept., University of South Florida, Tampa, FL, USA. He works in the field of otolaryngology and audiology research with special focuses on drug discovery for hearing loss and alternative optical based cochlear implants. He did his Masters at the Indian Institute of Science, Bangalore, India and doctoral and postdoctoral studies at the University of South Florida, Tampa, FL, USA. During his PhD studies, he developed next generation neural stimulation methods – nanoparticles enabled optical neural stimulation for auditory and sensory prosthetic devices. After his PhD, he is carrying out research on drug development, pre-clinical projects for prevention and treatment of hearing loss. He publishes regularly in various peer-reviewed journals that include ACS Nano (Impact Factor – 15); and has awarded 3 patents (1 pending approval) so far.