

The current evidence for cochlear implants in older adults



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As the world's population ages, an increasing number of individuals are living with hearing loss. The prevalence of hearing loss among persons over the age of 65 is estimated to be around 30 to 60% and increases to approximately 80% in those over 85^{1,2}. Unfortunately, only around 20% of hearing impaired individuals receive adequate hearing rehabilitation³.

Hearing loss in older adults has been linked to a decline in cognition, to social isolation and to diminished autonomy and quality of life^{1,4}. Work by Lin et al. suggests that cognitive decline has a linear association with severity of hearing loss^{4,5}. Indeed, if hearing loss is left untreated, this represents an independent risk factor for progression towards dementia and may be directly linked to Alzheimer's disease⁶. For this reason, the use of hearing aids for hearing loss has been identified as a recommended strategy for dementia risk reduction by the Lancet Commission. However, many people's hearing loss is too severe to be remediated with hearing aids and they may require cochlear implantation (CI).

Although cochlear implant surgery is a relatively short procedure, any patient undergoing surgery is subject to several risks which

need to be weighed against potential benefits. In order to better assess this risk/benefit profile, in 2022 our team performed a scoping review aimed at identifying and mapping the available evidence surrounding CI in older adults⁷.

We reviewed 97 articles which encompassed 7,182 patients over the age of 60 and found very interesting results. First, we did not identify any specific reason which would warrant outright refusal of cochlear implantation candidacy (for example, no specific health problem should result in an "absolute no"). Among the articles reviewed, we found that speech perception outcomes in older adults undergoing CI were excellent, often comparable to younger patients. We found low complication rates and improved quality of life after surgery.



We also reviewed the literature about cognition and cochlear implants. Since 2015, 12 studies prospectively (meaning looking forward in time) evaluated cognitive function after CI. Improvement was

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Another topic we reviewed was dizziness and falls after cochlear implantation. We know that patients of all ages can be dizzy after surgery, but there is some evidence that older patients may be more at risk. Unfortunately, very few studies examined this topic. Mosnier et al. found no notable increase in falls in their patients over 65 after surgery⁸. Wong et al. found that 3.6 to 7.7% of patients experienced dizziness after surgery that lasted more than 30 days⁹. More research identifying risk of falls and subjective dizziness changes before and after surgery would greatly enhance our ability to appropriately guide patients, especially as more and more older adults are interested in both unilateral and bilateral implantation.

noted in all domains of cognition. Among the most notable studies was a report by Mosnier et al., who performed an evaluation of 94 patients over the age of 65 who underwent a CI⁸. Her group noted improvement in cognitive function, as early as 6 months after surgery. They found that among patients with the poorest cognition scores before surgery, 81% improved at their 1-year assessment. Furthermore, the patients with the best cognitive performances before surgery showed stability in cognitive function at 1-year follow-up, although a mild decline was noted in 24% of patients. Their results suggest that a CI may potentially reverse cognitive impairment but will not universally prevent decline over time⁸. Overall, cognitive decline should not be a reason to deny someone cochlear implant consideration, and a more global assessment (often with the help of a neurologist or geriatrician) is needed.



Overall, cochlear implantation in older adults is associated with a substantial number of positive outcomes. No findings in the literature suggest a single patient characteristic that would warrant refusal to consider evaluation for cochlear implantation. As for anyone being considered for a CI, a global evaluation of the patient's goals, expectations and commitment remain of great importance.



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