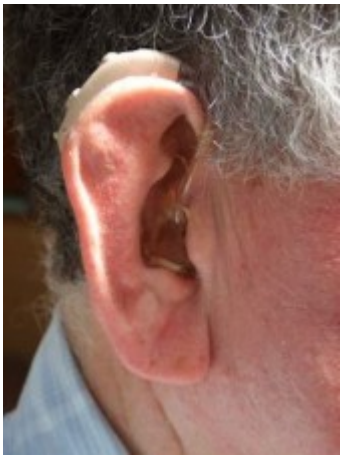
Published on *American Council on Science and Health* (https://www.acsh.org)

Cochlear implants improve both hearing and cognition in older patients

By ACSH Staff — March 12, 2015



Impaired hearing is much more common [1] than we think, according to the National Institute on Deafness and Other Communication Disorders (NIDCD), a branch of the NIH. Hearing aids can help most such patients, but some will require more sophisticated technologies.

Cochlear implants are small, complex electronic devices [2] that can help to provide a sense of sound to a person who is profoundly deaf or severely hard-of-hearing. According to the Food and Drug Administration (FDA), as of December 2012, approximately 324,200 people worldwide have received implants. In the United States, roughly 58,000 adults and 38,000 children have received them.

Since 2000, cochlear implants have been FDA-approved for use in eligible children beginning at 12 months of age. For young children who are deaf or severely hard-of-hearing, implantation while young exposes them to sounds during an optimal period to develop speech and language skills. A growing body of research, much of it funded by the NIDCD, has shown that when these children receive a cochlear implant followed by intensive therapy before 18 months of age, they are better able to hear, comprehend sound and music, and speak, compared to their peers who receive implants when they are older. Studies have also shown that eligible children who receive a cochlear implant at a young age develop language skills at a rate comparable to children with normal hearing, and many succeed in mainstream classrooms.

Now, a new study from France shows that cochlear implantation was associated with improved speech perception and cognitive function in adults 65 years or older with profound hearing loss, according to a report published online [3] by JAMA Otolaryngology-Head & Neck Surgery.

Isabelle Mosnier, M.D., of Assistance Publique-Hopitaux de Paris, France, and coauthors examined the relationship between cognitive function and hearing restoration with cochlear

implantation in older patients at 10 tertiary referral centers between 2006 and 2009. The study included 94 patients (ages 65 to 85) with profound postlingual (after speech has developed) hearing loss who were evaluated before cochlear implantation and then six and 12 months after.

Hearing impairment is associated with cognitive decline. In cases of severe to profound hearing loss where there is no benefit from conventional amplification (i.e. hearing aids), cochlear implantation that uses direct electrical stimulation of the auditory nerve has proven successful and selected older patients are among those who can benefit, according to the study background.

Results show cochlear implantation was associated with improved speech perception in quiet and in noise, quality of life and depression scores, with 76 percent of patients giving responses that indicate no depression at 12 months after implantation vs. 59 percent before implantation. As early as six months after cochlear implantation, improved average scores in all cognitive domains were seen. More than 80 percent of the patients (30 of 37) who had the poorest cognitive scores before implantation improved their cognitive function one year after implantation. In contrast, patients with the best cognitive performance before implantation showed stable postimplantation results.

"Our study demonstrates that hearing rehabilitation using cochlear implants in the elderly is associated with improvements in impaired cognitive function. Further research is needed to evaluate the long-term influence of hearing restoration on cognitive decline and its effect on public health," the authors conclude.
