



Neurocognitive changes following cochlear implantation

Völter Christiane

Department of Otorhinolaryngology, Head and Neck Surgery, Ruhr University Bochum, Katholisches Klinikum Bochum, St. Elisabeth-Hospital, Bleichstr. 15, 44787 Bochum, Germany

Abstract:

Due to demographic changes the number of older adults will increase. Since not only cognitive, but also sensory abilities diminish with chronological age and are closely linked to each other, one has to question whether hearing restoration via cochlear implantation may counteract cognitive decline in the elderly.

Patients aged ≥ 50 yrs. suffering of age related bilateral profound or severe hearing loss were followed-up pre- and 12 months after cochlear implantation. Cognitive functions were assessed by a computer-based test battery (ALAcog) with 10 different subtests covering short- and long-term memory, processing speed, verbal fluency, attention, working memory and inhibition. Performance was compared pre- to postoperative as well as to an age-matched control group.

In total 71 hearing impaired (mean age 66,3y (SD 9,29)) could be included. 1 year postoperatively neurocognitive performance significantly increased in most subdomains such as inhibition ($p=0,0029$), attention ($p=0,00086$), recall ($p=0,00041$), delayed recall ($p=0,00069$), working memory (n-back $p=0,023$; OSPAN $p=0,00001$) and verbal fluency ($p=0,00006$). In comparison to an age matched control group of 105 normal hearing subjects (mean age 65.96y (SD 9.38)) cochlear implant recipients reached almost the same level except in delayed recall and inhibition tasks. Elderly improved to an equal extend as younger patients. Patients with poor baseline performance showed the most remarkable changes.

Hearing impaired can benefit from cochlear implantation with regard to cognitive functions, especially cognitively poor and older subjects. Further longterm studies have to prove, if hearing rehabilitation might mediate the cognitive decline or even prevent dementia in the follow-up.



Biography:

Professor Christiane Völter, senior physican for otorhinolaryngology head and neck surgery as well as for Pediatric Audiology and Phoniatics is the head of Hearing competence centre Ruhr-University Bochum, Germany. Her research interest covers hearing rehabilitation especially in the elderly.

Publication of speakers

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