

Deafness is treatable

Editorial

Thirty years ago no one thought of cochlear implant to deaf patients or providing improvement in patients with moderate to severe hearing loss would be provided with improvement in hearing loss. Yet there were efforts on the part of sound being heard, thirty years ago the efforts turned out with a positive mood. Initially there was reluctance to implant electrode into cochlea for multiple reasons. First, given the complexity of human hearing, the likelihood of cochlear implants enabling anyone to achieve usable hearing appeared slim. Second, there was great interest in hair cell regeneration, and it was argued that implanting the cochlea with an electrode might somehow preclude regeneration. However as of today, the cochlear implant is widely accepted as a well-established procedure contemplated routinely both in cases of children as well as adults.¹ The single channel electrode has been modified to multichannel cochlear implant with multi-multidisciplinary group of auditory, speech scientists, electro physiologists, and otologists. They wanted to understand how the devices worked and what we could do to improve performance. The research team continued their efforts to improve and expand, though it was started with some skepticism and concerns, yet it reached to a conclusion that a multichannel device proved better than single channel through a post aural approach.^{2,3} The age of pediatric candidates for cochlear implant has dropped from 2years to as young as 12months, and eligibility criteria for adults continue to expand.

Cochlear implants bypass most of the peripheral auditory system which receives sound and converts that sound into movements of hair cells in the cochlea; the inside-portion of these hair cells release potassium ions in response to the movement of the hairs, and the potassium in turn stimulates other cells to release the neurotransmitter, glutamate, which makes the cochlear nerve send signals to the brain, which creates the experience of sound. Instead, the devices pick up sound and digitize it, convert that digitized sound into electrical signals, and transmit those signals to electrodes embedded in the cochlea. The electrodes electrically stimulate the cochlear nerve, causing it to send signals to the brain.^{2,3}

The surgical procedure is usually done under general anesthesia. There might be few risks of procedure such infection and otitis media with effusion.⁴ People with bilateral hearing loss having cochlear implant in both ears, give better results.⁵ The incidence of tinnitus has gradually decreased in the recent years due to advance technology.⁶ In the year 2015 a study was conducted to assess the Cochlear implant with patients having auditory neuropathy spectrum disorder found that diagnosis of the CI was too heterogeneous to make a claim that Cochlear implant was safe and effective way to manage.^{7,8}

A single channel implant was implanted 29years ago into a deaf adult. We received thrilling results and patient could hear the sound with multichannel implant. No one thought about thirty years ago that cochlear implant would enable the individual to hear about 70 to 90 % of words with moderate-to-severe hearing loss.

It can be said without exaggeration that cochlear implant works as reliable as the patient with normal hearing. However we still need to

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improve fitting to maximize individual performance. There is no doubt about the fact that even with children under age 1 the programming strategies have developed, Furthermore, hybrid implants aimed at stimulating high-frequency regions while preserving low-frequency acoustic hearing have the potential to widely expand the benefits of electrical hearing with their ability to improve speech perception for a much larger population.

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Conflicts of interest

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