https://doi.org/10.35845/kmuj.2025.23846

LETTER TO THE EDITOR

The need for expanded cochlear implantation services in rural Pakistan

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THIS ARTICLE MAY BE CITED AS: Hashmi SQ, Bashir MA, Sattar S. expanding cochlear implantation services in rural Pakistan. Khyber Med Univ J 2025;17(4):509-10. https://doi.org/10.35845/kmuj.2025.23846

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Cochlear implantation is an established and effective intervention for auditory rehabilitation in children with profound hearing loss. Its widespread adoption has been transformative, with over 100,000 users worldwide, offering renewed hope to affected children and their families by reducing the psychosocial burden of deafness. Bilateral cochlear implantation is increasingly practiced to further optimize auditory outcomes. According to World Health Organization, approximately 80% of children with profound hearing loss live in developing countries and are potential candidates for cochlear implantation.[1,2] Pediatric cochlear implantation was initiated in the United States in 1990, with subsequent recommendations extending implantation to children younger than 12 months with profound hearing loss. However, post-implantation observations revealed that successful surgery alone does not ensure optimal communication outcomes, highlighting the need for structured speech and language rehabilitation.[3,4]

Cochlear implantation has since been widely adopted in adults with severe-to-profound hearing loss and represents the first successful cranial nerve stimulator, marking a major advancement in otolaryngology. A prospective study from India (2019) demonstrated significantly better auditory outcomes in children implanted before 5 years of age compared with those implanted later, although implantation after 5 years still provided meaningful auditory benefit.[5]

Pakistan is a developing country with an estimated prevalence of bilateral hearing loss of approximately 1.6 per 1,000 individuals, with nearly 70% of cases attributed to consanguineous marriages, particularly in rural populations.[6] A community-based survey from rural Pakistan reported a hearing loss prevalence of 7.9%.[7] Genetically, about 80% of cases involve autosomal recessive non-syndromic hearing loss, typically congenital, while approximately 20% are autosomal dominant and often progressive. X-linked and maternally inherited mitochondrial DNA–related hearing loss are relatively rare. The higher burden of hereditary hearing loss in consanguineous populations reflects the increased likelihood of inheriting two pathogenic alleles from a common ancestor. Mutations in the GJB2 gene are the most identified cause of non-syndromic hearing loss in Pakistan, leading to impaired potassium ion recycling in the inner ear and subsequent sensorineural hearing loss.[8]

The cochlear implant program in Pakistan began in 2000, but initially only a small proportion of patients could afford the procedure. In rural areas, limited counselling and the prolonged rehabilitation process caused significant stress for families. Currently, several hospitals, in collaboration with international companies, provide cochlear implant surgery with habilitation services, including Dow University of Health Sciences, Karachi; Capital Development Hospital, Islamabad; Combined Military Hospital, Rawalpindi; Bahria International Hospital, Lahore; and Central Park Hospital, Lahore. Although some programs now offer free cochlear implant surgery with one year of funded audiological and speech therapy services, these efforts remain inadequate given the rapidly growing population. There is a critical shortage of cochlear implant surgeons, devices, and rehabilitation teams, particularly in rural areas. Inadequate rehabilitation and counselling have also led to device abandonment and loss to follow-up. Strengthened government and NGO support is required to expand funding, rehabilitation services, and community-based programs, especially in underserved regions.

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CONFLICT OF INTEREST

The authors declared no conflict of interest, whether financial or otherwise, that could compromise the integrity, objectivity, or validity of their opinions.

GRANT SUPPORT AND FINANCIAL DISCLOSURE

Authors declared no specific grant for this research from any funding agency in the public, commercial or non-profit sectors

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