

EXECUTIVE SUMMARY

Single-sided Deafness in Children

Key points about SSD in children

- Managing congenital or early acquired single-sided deafness (SSD) in children may be of greater urgency than postlingually acquired SSD in adults.
- SSD during early development can impact the development of the auditory system and affect binaural integration, which may affect the development of speech and language resulting in social, behavioural, and educational challenges.[1]
- Spatial hearing (i.e. sound localization), speech understanding in noise, and quality of life (QoL) are strongly impaired in children with SSD like in adults with SSD.[2]
- The goal of cochlear implantation in children with SSD is to provide bilateral input to encourage the development of binaural hearing.[2]
- Guidelines for the management of pediatric SSD with a cochlear implant (CI) have recently been published by the American CI Alliance Task Force[2]. Guidelines for the wider management of SSD in children have been published by the Ontario Infant Hearing Program[3] and the Brazilian Society of Otology[4].
- A HEARRING consensus paper on minimum standards for the management of SSD in children is currently in submission (Lorens et al., Sept 2026)
- Early diagnosis and counselling are key [5]; early implantation is associated with better outcomes[2].

Treatment options and their effectiveness

- Hearing technologies available for school-age children with SSD include contralateral-routing-of-signal (CROS) and bone conduction devices (BCDs). Each re-routing device has advantages and disadvantages.[6] Young children might not be able to judge if they benefit from CROS in addition to their normal-hearing ear.[7]
- Cochlear implantation is the only strategy that can potentially restore binaural hearing, delivering significant improvements in speech understanding in noise, spatial localization, and overall QoL in the long run.[8,9]

Specific selection criteria for cochlear implantation in children with SSD

- Medical considerations: functional cochlear nerve (3D MRI is recommended to rule out cochlear nerve deficiency), anatomy enabling full electrode array insertion, potential progressive hearing loss in the better ear[2]
- Audiological considerations: Severe-to-profound unilateral sensorineural hearing loss with a PTA of <70 dB HL, normal-hearing or mild-to-moderate hearing loss in the contralateral ear[10]
- Alternative technology considerations: No or limited benefit from hearing aids[10]





Preoperative assessment[2]

- Age-appropriate behavioural assessment
- Age-appropriate speech perception testing
- Spatial hearing assessment
- Subjective questionnaires
- Clarification of the etiology is recommended as different etiologies and co-morbidities may impact postoperative outcomes [8]

Preoperative counselling[2]

- Personalized family-centred approach (working with parents & care-givers)
- Information about developmental disadvantages of SSD in children
- Stressing the importance of neuroplasticity and based on that, the benefit of early implantation
- Explaining the importance of postimplant therapy, full-time use, and audiological follow-up
- Clarification of expectations



Postoperative rehabilitation & assessment[2]

- Systematic postoperative rehabilitation should begin after initial fitting according to the individual's needs and should follow a structure plan.
- Auditory listening therapy based on the development of binaural integration is recommended. However, delivery of binaural integration-focused therapy may be challenging in young children.
- To make sure listening exercises train the CI side, rather than letting the normal-hearing ear do the work, direct audio input on the CI side as soon as feasible is recommended.[10]
- Postoperative assessment should involve regular assessment of unaided hearing, validation of audibility from the CI, isolated single-word recognition, spatial hearing assessment with and without the CI, and relevant subjective questionnaires.
- Clinicians should recognize that CI in children with SSD is a rapidly evolving field and that they should keep up to date on the literature and current research outcomes.

Conclusions

- Cochlear implantation is an effective treatment for children with both congenital and acquired SSD.[9]
- Thorough counselling is required[8].

References

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