



For persons whose hearing does not return in 60–90 days following idiopathic sudden sensorineural hearing loss (ISSNHL), audiologic rehabilitation should be provided. This article describes aspects of audiologic rehabilitation, including counselling, information about lifestyle changes, and techniques (such as amplification) for overcoming the communication handicap ISSNHL imposes. Advantages and limitations of various hearing aids are presented.

Key words: audiology, counselling, hearing aids, otology, rehabilitation, sensorineural, hearing loss

Sudden Deafness, Part 2: Rehabilitation

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Introduction

Part I of this series raised the issue of whether rehabilitation should be planned for patients with idiopathic sudden sensorineural hearing loss (ISSNHL) who do not experience spontaneous recovery of hearing or respond to medical/surgical treatment.¹ We regard rehabilitation planning and execution as the immediate response to the diagnosis of ISSNHL. When medical/surgical treatment to recover hearing is deemed inappropriate or fails, patients should not be dismissed and informed that reversing the hearing loss is unlikely. Instead, they should be offered a rehabilitation program (Table 1).²

Counselling

Patients need full explanations of ISSNHL, spontaneous recovery, and treatment options. Clinicians should offer realistic assessments of their condition and the possibilities for remission. At the same time, patients' desires to recover their lost hearing should be fully and empathetically discussed.

It is true that if told by one expert that hearing cannot be restored many patients will seek another opinion. That is why patients should be given counselling early in professional visits. They should be advised that if permanence of the hearing loss were to become probable, rehabilitation would be an option. The clinician should counter any fears that rehabilitation may prevent later recovery of hearing; the possibility of spontaneous recovery will remain while rehabilitation proceeds.

Audiologists provide counselling on rehabilitation; for example, when to intercede with personal amplification and assistive listening devices, anticipated benefits from various amplification systems and their limitations, relations of amplification to prognosis for hearing recovery, and appropriate auditory hygiene. The literature, primarily in otolaryngology journals, is replete with references to possible etiologies and efficacy of various therapeutic regimes, but it tends to ignore rehabilitation.³

How individuals are to manage their lives with a unilateral hearing loss should be discussed at length, including strategies they can employ such as avoiding excessive noise exposure, prompt treatment of middle-ear infections, learning the technique of lip reading, and acquiring hearing aids. Patients should be given the opportunity to discuss each option and, when they have had time to adjust to their hearing loss, evaluate its impact on their daily living.

The clinician should confer about lifestyle habits that can affect all sensory functions and recommend actions that will ameliorate them. Patients, in turn, should learn to optimize conditions that can improve hearing; for example, promptly treating ear and upper-respiratory infections, diabetes, and hypertension, and eliminating smoking and other debilitating habits. These wise suggestions are easily made but may be difficult for the patient to implement, especially older patients. Nonetheless, the place of such discussions remains in the rehabilitation program to counterbalance the

Table 1: Aspects of Audiologic Rehabilitation

Counselling	Clinicians should offer full explanations of ISSNHL, spontaneous recovery, and treatment options, as well as realistic assessments of a patient's condition and possibilities for remission.
Serial Audiometry	Further changes in hearing, both in the originally affected and the contralateral ear, can help assess treatments.
Amplification	The acceptance of a hearing aid does not make the hearing loss irreversible; an aid's amplification characteristics can be adjusted if hearing improves, and its use can be discontinued if hearing returns to normal.

patients' focus on their diminished hearing capacity.

Clinicians must also deal with the emotional consequences of ISSNHL. What does it mean to the patient? Is it a sign of declining health, lessened vigour, or impending death? If hearing recovers, as it may, what is the probability that ISSNHL will recur or affect the opposite ear? What, if any, will be the impact on the unaffected ear? Is it at greater risk of ISSNHL? As with any negative alterations in physical condition, hearing loss affects self-image. Counselling to overcome strong negative reactions to ISSNHL is a high rehabilitation priority.

Serial (Repeat) Audiometry

More than simply providing the patient with an optimistic outlook, the continual search for signs of returning or worsened hearing should be part of the rehabilitation plan. Partial recovery can occur in small steps that might be overlooked by patients. Improvements in audition may be as slow to occur as the onset of the hearing loss was sudden. Further changes in hearing, both in the originally affected and the contralateral ear, can help guide treatments. For those reasons, serial pure-tone audiometry and word-recognition testing are imperative.

Amplification

Questions of when, if, and how to amplify will evoke numerous choices. Many patients may resist suggestions to try a hearing aid because to them it means they will not recover their hearing. This attitude must be considered when recommending amplification. Most patients will understand when an audiologist explains that acceptance of a hearing aid does not make the hearing loss irre-

versible. An aid's amplification characteristics can be adjusted if hearing improves, and its use can be discontinued if hearing returns to normal.

When to amplify may depend on patient resistance, economic factors, and other considerations. Uppermost should be the possibilities for spontaneous recovery. A delay of 60–90 days is justified by the odds favouring the return of normal to near-normal hearing during this period. To wait longer than this period of time, however, would be inadvisable in view of the handicap imposed by the ISSNHL.

Should the affected ear receive the aid? Or should a contralateral routing of offside signals (CROS) aid be the choice?²⁴ If there is residual hearing in the affected ear, the audiologist should consider a hearing aid for that ear. It may be either an in-the-ear or behind-the-ear style depending on severity of the hearing loss and other audiologic considerations. If the affected ear is beyond an aid (i.e., a profound hearing loss and word-recognition scores poorer than 20%), a CROS, transcranial, or bone-anchored hearing aid (BAHA) in the affected ear may offer a solution.

When the normal or better ear of an individual with unilateral loss is exposed to environmental noise, the ability to communicate is seriously compromised. The person is functioning, in effect, with a significant bilateral hearing loss. In a CROS fitting, a microphone on the side of the affected ear electronically routes sounds originating on that side to an amplifier and receiver mounted near the normal ear, thus directing the sounds into the normal or better ear by tubing or a nonoccluding ear mold that extends into the open ear canal. The object is to pick

up sounds on the side of the affected ear and route them to the good ear to overcome the "head-shadow effect" and improve overall hearing functions.⁵ There is an alternative to CROS fittings to consider: personal FM systems that provide individuals with unilateral hearing loss with an improved signal-to-noise ratio, resulting in significant improvement in the ability to understand speech in difficult listening environments. The transcranial CROS may be another option for persons with ISSNHL who have sustained severe-to-profound unilateral losses but have excellent hearing in the better ear. If the better ear has at most a mild high-frequency hearing loss, a conventional CROS is recommended.⁷

The style of hearing aid selected for patients must be consistent with their ability to manage the components easily and comfortably and with their visual acuity. Very small, completely in-the-canal instruments that use tiny batteries may not be appropriate for older persons with limited dexterity and poor vision. For them, a full-shell in-the-ear hearing aid may be preferred.

Placing a conventional hearing aid on the involved ear with the object of setting the skull into motion generates a bone-conducted stimulus to drive the better-ear cochlea.⁶ The originator of the transcranial CROS reports a success rate of 25% in patients with severe-to-profound unilateral hearing loss (personal communication with R. F. Sullivan, 2002). Nevertheless, many patients have reported mixed satisfaction with CROS amplification.⁸

Canada and the United States have recently approved the use of the BAHA for ISSNHL patients. BAHA is a cochlear stimulator that transmits auditory stimuli

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via bone conduction to the contralateral cochlea. This requires the surgical implantation of a four millimetre titanium fixture in the postauricular area of the hearing-impaired ear. A multi-institutional study has shown greater patient satisfaction and improved communication with a BAHA than with a CROS.^{8,9}

Conclusion

ISSNHL rehabilitation begins with counselling the patient. Counselling should deal with their concerns about the nature of ISSNHL, spontaneous recovery, and how to manage if recovery does not occur. Since instituting rehabilitation is tantamount to accepting the hearing loss, the clinician must reassure the patient that recovery of hearing will not be inhibited by preparations for its not returning.

The audiologist should confer about poor lifestyle habits that can adversely affect hearing. Recommendations for auditory training and lip reading instruction should be made. To assure that any indications of returning auditory functioning are not overlooked, repeat pure-tone and speech audiometry should be continued.

The need for and type of amplification will vary, but hearing aids should be a primary consideration once the patient's hearing stabilizes. Possibilities for rehabilitation include amplification in the affected ear, CROS, BAHA, and FM systems. The indications and limitations of each system should be presented to the patient. ◆

No competing financial interests declared.

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