

Evidence-Based Practice

Management of Adult Sensorineural Hearing Loss

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KEYWORDS

- Evidence-based medicine • Hearing loss, sensorineural
- Hearing loss, noise-induced • Hearing loss, sudden • Hearing loss, unilateral
- Magnetic resonance imaging • Glucocorticoids • Antiviral agents

KEY POINTS

The following points list the level of evidence based on the criteria of the Oxford Center for Evidence-Based Medicine. Additional critical points are provided and points here are expanded at the conclusion of this article.

- The best current evidence for oral corticosteroid treatment of sudden sensorineural hearing loss (SSNHL) is contradictory in outcome and does not permit a definitive treatment recommendation (level 1a).
- Treatment of SSNHL may be equally efficacious up to and potentially later than 10 days after the loss of hearing (level 1b).
- Transtympanic corticosteroids may be useful as either primary therapy or salvage therapy in patients with medical comorbidities who are at risk of serious adverse effects from oral corticosteroid administration (level 1b).
- There is insufficient evidence to recommend antiviral therapy as primary or steroid adjunctive therapy in patients with SSNHL (level 1a).
- There is limited evidence to suggest that primary hyperbaric oxygen therapy improves hearing in patients with idiopathic SSNHL and no evidence of a functionally significant improvement (level 1a).

OVERVIEW

Sensorineural hearing loss (SNHL) is a complex disease influenced by interactions between multiple internal and external causative factors. Genetics and age-related hearing changes may predetermine a patient's hearing throughout their lifetime, and

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any potential hearing changes over time may be accelerated by numerous external factors. This relationship becomes particularly complex if the patient's genetic makeup predisposes that individual to a hearing vulnerability from external influences such as chronic exposure to traumatic levels of noise or from the use of ototoxic pharmaceuticals.

The complexity of the diagnostic evaluation and potential treatment options for SNHL has increased because of multiple considerations. There is a downward trend in the presenting age and an increasing severity of hearing loss in patients from first-world (industrialized) nations.¹ Patterns of hearing loss have changed in relation to noise exposure because of various occupational hazards such as heavy industrial noise and firearms use in military and police occupations. Clinicians involved in the management of critically ill and complex medical patients are aware of the impact that pharmaceutical therapy for multisystem disease may have on hearing. Patients who have immigrated from developing countries may present with hearing loss caused by exposure to rare pathogens such as Lassa fever² or with a chronic otitis media complicated by a lack of primary care or access to an otolaryngologist in their country of origin. Thus, it is prudent for any practicing otolaryngologist to be aware of these and other factors that may influence their diagnostic and management approaches for patients presenting with SNHL.

The medical literature contains thousands of research papers on SNHL, the overall aim of which is to improve our ability as clinicians to diagnose and treat patients with hearing loss. The challenge lies in sifting through this wealth of data and applying them to our everyday practices, because the principles of evidence-based medicine have become integrated into our daily clinical interaction with patients. The goal of this article is to present the current best evidence available regarding the diagnostic process and treatments available for the management of hearing loss as it applies to the more controversial aspects of adult SNHL. The levels of evidence proposed by the Oxford Center for Evidence-Based Medicine are used throughout this article.³

Causes of Sensorineural Hearing Loss

Presbycusis is the most common cause of SNHL in industrialized nations. In 2003 to 2004, the prevalence of hearing loss in the adult US population aged 20 to 69 years was 16.1% (29 million Americans), and 31% of those had a high-frequency hearing loss. The prevalence of hearing loss was higher among the following set of individuals⁴:

- Men
- White
- Older age
- Less educated
- History of diabetes mellitus
- History of hypertension
- Greater than a 20 pack-year history of smoking

It can be expected that the prevalence and impact of hearing loss on society will increase as the elderly proportion of the population in many industrialized nations continues to grow.

Noise

The detrimental effect of noise on the inner ear is one of the most common causes of permanent hearing loss. Approximately 30 million American workers are exposed to hazardous work-related noise. Occupational and recreational exposure to firearms is

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