

Older Adult Hearing Loss and Screening

Key Points

- Eighty percent of older American adults have untreated hearing loss.
- Hearing loss is associated with decreased quality of life, depression, communication disorders, social withdrawal and cognitive impairment.

Overview

Definition

- Presbycusis is another term for age-related sensorineural hearing loss (**ARHL**).
 - Damage to the cochlea, Cranial Nerve VIII, or Internal Auditory canal
 - Bilateral, symmetric, high-frequency sensorineural hearing loss
- Noise-induced hearing loss (**NIHL**)
 - Direct mechanical injury to sensory hair cells in the cochlea
 - Continuous noise exposure

Aging and hearing loss

- Cell reduction in auditory cortex
- Acoustic nerve (CN VIII) fiber degeneration
- Inner ear sensory cell loss and membrane calcification

Risk Factors

- Advancing Age (ARHI)
- Exposure to loud noises or ototoxic agents (i.e. loud machinery) (NIHL)
- Other External ear or middle ear conductive hearing loss risk factors include:
 - Cerumen impaction
 - Middle ear fluid
 - Perforated tympanic membrane

Assessment

Recommendations for hearing assessments:

- Screening all older adults over the age of 65 years.
- Screening should be conducted in a primary care setting.
- Obtain history of chronic medical conditions (diabetes mellitus, CAD), ear infections, ear trauma, occupation

- Medication review assessing for use of diuretics (loop), aspirin, antineoplastic (cisplatin, 5-fluorouracil), antimalarial (chloroquine, quinine), and antibiotic (aminoglycosides, erythromycin, tetracycline, vancomycin)
- Assessment Instruments available include:
 - **Hearing Handicap Inventory for the Elderly Screening (HHIE-S)**
https://www.audiology.org/sites/default/files/PracticeManagement/Medicare_HHI.pdf
 - 10 question questionnaire
 - Score greater than 10 points should be referred to an audiologist
 - **Audio Scope (Welch Allyn, Inc.)**
 - Otoscope examination
 - Test hearing
 - Whispered Voice Test, finger rub or a watch tick test
 - Ask the question - “**Do you have a hearing problem now?**”
- If any of the above four are positive – referral to an Audiologist is indicated.
- Immediate referral to an Otolaryngologist should occur if assessment reveals:
 - Unilateral hearing loss – etiology unknown
 - Ear pain, tinnitus, drainage, tympanic membrane perforation
 - Acute onset, rapidly progressive hearing loss over a 12 week period

Diagnosis

- Otoscope examination to rule out perforation, infection, impaction
- Pure-tone audiogram will confirm hearing loss
- Differential Diagnosis

Anatomical Location	Potential Etiology
Outer Ear	Cerumen, Otitis externa, Trauma, Squamous cell carcinoma
Middle Ear	Otosclerosis, Otitis Media, Tympanic membrane perforation
Inner Ear	Meniere’s disease, Noise Exposure, Ototoxic drugs, Presbycusis, Vascular disease.

Adapted from Lewis, T.J. Hearing Impairment: Chapter 25. Ham’s Primary Care Geriatrics: a Case-Based Approach (6th Ed). Philadelphia: Elsevier/Saunders, pg. 293.

Intervention

- Ninety-five percent of persons with hearing loss can be helped with a hearing aid.
- Digital hearing aids selected, fitted and dispensed by a licensed audiologist.
 - Various types – Behind the ear hearing aids, Receiver in the canal hearing aids, In-the-ear hearing aids, Completely-in-the-canal hearing aids.
- Patient education by a licensed audiologist to assist with hearing aid accommodation.

References

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Final Recommendation Statement: Hearing Loss in Older Adults: Screening. U.S. Preventive Services Task Force. December 2014.

<https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/hearing-loss-in-older-adults-screening>

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