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:
  o Hearing Handicap Inventory for the Elderly Screening (HHIE-S)  
    http://www.audrehab.org/hhie.htm
    ▪ 10 question questionnaire
    ▪ Score greater than 10 points should be referred to an audiologist
  o 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:
  o Unilateral hearing loss – etiology unknown
  o Ear pain, tinnitus, drainage, tympanic membrane perforation
  o 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

<table>
<thead>
<tr>
<th>Anatomical Location</th>
<th>Potential Etiology</th>
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</thead>
<tbody>
<tr>
<td>Outer Ear</td>
<td>Cerumen, Otitis externa, Trauma, Squamous cell carcinoma</td>
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<tr>
<td>Middle Ear</td>
<td>Otosclerosis, Otitis Media, Tympanic membrane perforation</td>
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<tr>
<td>Inner Ear</td>
<td>Meniere’s disease, Noise Exposure, Ototoxic drugs, Presbycusis, Vascular disease</td>
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</tbody>
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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.
  o 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


