Sudden Hearing Loss is an Otologic Emergency!

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Agenda

• Symptoms and examination findings
• Known and suspected causes
• Further testing to do/not to do
• Recommended treatment
• Current and future research
Learning Objectives

1. List specific causes of sudden hearing loss.
2. Discuss why certain tests and treatments are or are not recommended.
3. Educate patients with sudden hearing loss about the importance of prompt medical attention.
Typical Presentation of SHL

• Middle aged man/woman
• Can’t hear on the phone
• Awaken with hearing loss
• May be preceded by a ‘pop’
• Tinnitus, dizziness
Definition of SHL

• Immediate or rapidly progressive hearing loss of at least 30 dB in 3 connected frequencies
• “Sudden deafness”
• “Sudden idiopathic hearing loss” when no identifiable cause found
Anatomy of SHL
Incidence of Sudden Hearing Loss

• Estimated yearly incidence is 5-20 cases per 100,000 persons
• 4,000 new cases in U.S. every year
• Typically adults in 40s and 50s
• Unilateral - 90%

ASHLA, NIH 2016
Evaluation of SHL: History

• Trauma, head injury
• Head cold, GI bug or other viral infection
• Open heart surgery
• Rxs for Cancer, Kidney or heart failure, Erectile dysfunction
Evaluation of SHL: History

• Other otologic symptoms of dizziness, tinnitus, otalgia, otorrhea, aural fullness
• Neurologic symptoms of headache, weakness, numbness, fatigue, diplopia
• Other recent signs/symptoms
Evaluation of SHL: Examination

• Ear [rule out conductive HL]:
  – Canal swelling/infection
  – Cerumen impaction
  – Canal foreign body
  – TM perforation
  – Otitis media
  – Hemotympanum
Evaluation of SHL: Examination

• Nose:
  – Membrane swelling
  – Septal deviation
  – Turbinate hypertrophy

• Skin:
  – Circular red rash with clearing center
Evaluation of SHL: Examination

• Neurologic:
  – Cranial nerve evaluation esp VII, IX, X
Evaluation of SHL: Audiogram
Evaluation of SHL: Further Testing

• MRI to rule out acoustic neuroma, brain stem tumor, MS, other
• NO LABS without specific indication

2014 AAOHNS Position Statement of Evaluation of Patients with Sudden Hearing Loss
Evaluation of SHL: Further Testing

• CT temporal bone for patients under 30 yo (inner ear malformation: enlarged vestibular aqueduct, Mondini deformity)

PENN ENT e-Update Feb 11, 2016
Causes of SHL

*Known and Suspected*

- Definite cause can only be identified in 10-15% of patients

ASHLA 2016
Causes of SHL

Known and Suspected

• Viral inflammation of auditory nerve
• Embolic phenomenon of cochlear artery
• Acoustic neuroma
• Medication side effects
• Temporal bone deformities
• Other
Viral Inflammation

- Common organisms
- Swelling of vestibular cochlear nerves within cochlear canal
Vascular occlusion

- Cochlear artery - single end artery
- Cardiac surgery
- Hypercoagulable states
- Other embolism
Acoustic Neuroma

• Benign tumor of Schwann cells that cover the vestibular nerve ("vestibular schwannoma")
• Occurs in 1:100,000 patients in U.S. every year
• Asymptomatic or compressive symptoms of balance/hearing/facial nerve/brain
• 13% of patients present w SHL
Acoustic Neuroma

• Treatment is
  – Monitoring
  – Radiation
  – Surgical excision
Ototoxic Medications

- Aspirin
- NSAIDs: ibuprofen, naproxen, others
- Abics: gentamycin, neomycin, others
- Loop diuretics: furosemide (Lasix), others
- Chemotherapy meds: cyclophosphamide, bleomycin, cisplatin
- Erectile dysfunction drugs
Rx Drugs FDA-Approved for ED

• Avanafil (Stendra)
• Tadalafil (Cialis)
• Vardenafil (Levitra, Staxyn)
• Sildenafil (Viagra)
ED Medications and SHL

• “Physicians should advise patients to stop taking PDE5 inhibitors and seek prompt medical attention in the event of sudden decrease of loss of hearing. These events, which may be accompanied by tinnitus and dizziness, have been reported in temporal association to the intake of PDE5 inhibitors. It is not possible to determine whether these events are related directly to the use of PDE5 inhibitors or to other factors” Lilly Prescribing Information
ED Medications and SHL

• Est 1.5M ED Rxs filled from 1996-2007
• 29 adverse events of SHL received by FDA
• SHL was temporary in 1/3
Natural History of SHL

• 35-50% pts may recover all or some of their hearing without treatment
• Others have permanent loss
Treatment of Patient w SHL

- Prompt treatment important!
- The sooner the better!
- 3 week window!
- SHL is an Otologic Emergency!
Treatment of Patient w SHL

- Oral prednisone
- Transtympanic steroid injection
Oral Steroids

• High/tapering dose
• Watch for hyperglycemia, hypertension
• Contraindicated in diabetic/hypertensive patients
Transtympanic Steroid Injection

• In-office procedure
• Instill into middle ear/absorbed into inner ear
• Safe for diabetic/hypertensive patients
• May be given in addition to oral steroids
Transtympanic Steroid Injection: Technique

• Preparation