GREAT PATIENT CARE BEGINS WITH GREAT COMMUNICATION—LIVING WELL WITH HEARING LOSS

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- President/Owner of Hearing Associates
- Established in 1980
- Gurnee and Libertyville
Objectives

- Provide awareness of hearing loss
- Potential effects of ototoxicity and how to monitor for it
- Treatment options for hearing loss and how to communicate more effectively
Prevalence of Hearing Loss

- 36 million American adults-17% of the US population has some degree of hearing loss
- 3 in 10 people over age 60
- 65% of people with hearing loss are younger than age 65 years
Consequences of UNTREATED Hearing Loss

- Irritability, Negativity, Anger
- Fatigue, Tension, Stress
- Avoidance or Withdrawal
- Social Rejection and Loneliness
- Reduced Alertness
- Impaired Memory (link to dementia)
- Diminished Psychological and Overall Health
Consequences of UNTREATED Hearing Loss—Significant Other

- More than a third of married adults over age 50 with hearing loss believe their hearing loss has a **negative impact on their marriage.**
  - Asking for repetition
  - Debates on volume of the television
  - Less socialization
  - Reduced attendance to social events
How We Hear

- Four Components
  - Outer Ear
  - Middle Ear
  - Inner Ear
  - Central Auditory Pathways

- Hearing loss can occur in any one or more of these areas

Image taken from:
http://www.betterhearing.org/hearing_loss/how_we_hear/index.cfm
Outer Ear

- Comprised of Pinna (Auricle) and External Auditory Canal
- Purpose is to Collect and Funnel Sound
- 1 inch long in adults
- Purpose of Cerumen (Ear Wax) is to lubricate skin and prevent debris from getting deep into the ear canal
- Hearing Loss causes:
  - Traumatic (i.e. Cauliflower Ear)
  - Congenital (i.e. Atresia)
  - Medical (i.e. External Otitis)

Middle Ear

- Made up of the Tympanic Membrane (Ear Drum) and the ossicles: Malleus (Hammer), Incus (Anvil), and Stapes (Stirrup)
- Transmits sound by vibrating the TM and the ossicles
- Hearing Loss Causes
  - Traumatic (i.e. Ossicular Discontinuity)
  - Congenital (i.e. anatomical abnormality)
  - Medical (i.e. Otosclerosis, Otitis Media)

Inner Ear

- Houses the Hearing and Balance Organ
- Comprised of the fluid filled cochlea and the eighth (auditory) cranial nerve
- Around 15,000 Hair Cells on the Organ of Corti—releases chemicals to nerve
- Hearing Loss Causes and Contributing Factors:
  - Traumatic (i.e. Noise Induced, Ototoxicity)
  - Medical (i.e. Viral, Autoimmune, Diabetes, Acoustic Neuroma)

Image taken from
http://www.tokresource.org/tok_classes/biobiobio/biomenue/options_folder/E2_per ception/index.htm
Central Auditory Pathways

- Complex network of neural pathways
- Responsible for:
  - Sound Localization
  - Understanding Speech in Background Noise
  - Music Perception
- Hearing Loss Causes
  - Central Auditory Processing Problems

Two main purposes of the Ear

- Conversion of sound energy into neural impulses for the brain to interpret
- Conversion of movement of head relative to gravity into neural impulses for the brain to interpret
Ototoxicity

- Cochleotoxicity and Vestibulotoxicity
- Over 200 medications are known to potentially have harmful effects on the ear
  - Aminoglycosides (i.e. streptomycin, gentamicin)
  - Platinum-based chemotherapeutics (i.e. cisplatin, carboplatin)
  - Loop diuretics (i.e. furosemide)
  - Salicylates (i.e. aspirin)
  - Quinine
Risk Factors

- Advanced age
- Impaired renal function
- Genetic susceptibility
- Noise exposure
- Pre-existing hearing loss
- Concurrent administration of another ototoxic drug
Cochleotoxicity
Diagnosis

- Diagnosed through routine audiometric monitoring
  - Pure-tone audiometry at 0.125-16 kHz
  - Distortion product otoacoustic emissions
  - Word recognition testing
  - Tympanometry
  - Acoustic reflexes
Ototoxic Monitoring Protocol

Platinum Derivatives

Baseline Assessment

Carboplatin Chemotherapy
- Monitor following every 2-4 cycles
- Post Treatment Monitoring – 3, 6, 9, 12 months then annually

Cisplatin Chemotherapy
- Monitor following every cycle
- Post Treatment Monitoring – 3, 6, 9, 12 months then annually

Cranial Radiation

Baseline Assessment

Post Treatment Monitoring

High Risk - monitor every 6 months for 5 years

Low Risk - monitor annually for 5 years
Symptoms

- Tinnitus
- Aural fullness
- Unilateral or bilateral hearing loss
- Vertigo or imbalance
Case Study

- 59 year old treated for esophogeal cancer
- Treatment began every three weeks with Cisplatin, Herceptin, and Xeloda in Feb 2013
- June 2013 patient noticed difficulty understanding conversation
Prognosis and Treatment

- Irreversible vs reversible
- Currently no known treatment for ototoxicity apart from withdrawing the ototoxic medication
- Under investigation
  - Molecular therapy - use of an otoprotective to block the toxin receptors
  - Intratympanic injections of corticosteroids
Living Well with Hearing Loss
Rehabilitative Options

Good Communication
Communication

Sender of Message | HEARING LOSS | Receiver of Message
Factors That Influence Understanding

From the Listener

From the Speaker

From the Environment
Factor that Influence Understanding—Listener

- Level of Hearing Loss
- Type of Hearing Loss
- Use of Hearing Aids
- Attention and Motivation
- Expectations
- Emotional State/Fatigue

- Tinnitus
- Tension Level/Stress
- Vision
Factors that Influence Understanding – Environment

- Background Noise
- Lighting Conditions
- Room Acoustics
- Distance From Speaker
- Assistive Devices
- Use/Readability of Visual Aids
- Interfering Objects
- Angle of Vision
Factors that Influence Understanding – Speaker

- Voice Intensity
- Voice Projection
- Rate of Speech
- Clarity of Speech
- Facial Expressions
- Body Language and Position
- Accents
- Beard or Mustache
- Objects Near Face
- Interest in Message
- Relationship to Listener
So What Can You Do?
PERSONAL CONSIDERATIONS

- Hearing Loss: Treat and Be Consistent
- Vision: Treat and Be Consistent
- State of Mind: Alert and Well Rested
- Observe
  - Facial expressions and cues
  - Attentive listening skills
  - Context cues
- Request Clarification: Ask and Summarize
ENVIRONMENTAL MANAGEMENT

- Room Size: Small Is Better
- Wall and Floor Coverings: Think Soft
- Background Noise: Avoid
- Noise Sources: Turn Off or Move Away
- Lighting: Keep the light on
- Distance: Get Close
SPEAKER CONSIDERATIONS

- Rate of Speech: SLOW DOWN
- Speak Clearly: Don’t Overemphasize
- Voice Pitch: Higher is Harder
- Volume: Loud but DON’T YELL
- Facial Expression
- Objects and Head Movements
- Get Attention
- Rephrase
MORE

 SPEAKER CONSIDERATIONS

- State the Topic
- Confirm Details
- Use Gestures
- Move into the Room
Questions?
SOCIAL

Signs of Hearing Loss

- Think other people are mumbling or are muffled
- Require frequent repetition
- Difficulty following conversation involving 2 or more people
- Difficulty hearing in noisy situations
- Trouble hearing women and children
- Trouble hearing unless you can see the speakers face
EMOTIONAL

Signs of Hearing Loss

- Feeling annoyed because you have difficulty understanding other people
- Feeling embarrassed when meeting new people or when you misunderstand
- Feeling anxious about being unable to hear
- Withdrawal from social situations