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16:30 - 17:25  WS #165: The Effect of Hearing Loss on Your Elderly Patients. Cochlear Implants?
17:35 - 18:30  WS #177: The Effect of Hearing Loss on Your Elderly Patients. Cochlear Implants? (Repeated)
Treatment of Hearing Loss in Your Elderly Patients: Hearing Aids or Cochlear Implants?

Kierrin Svoboda – Audiologist MNZAS
Outline for Today

• Hearing system refresher
  – Hearing anatomy and types of hearing loss

• Treatment and Rehabilitation Options
  – Hearing Aids and funding options
  – Cochlear Implants

• Hearing loss in General Practice
  – How to detect hearing loss in your patients
  – When to refer to an Audiologist
  – How to interpret audiograms

• Question Time
Disclosure Statement

I am employed by Bay Audiology, which is part of the Amplifon Group. We are independent of any Hearing Aid Manufacturer.

CME sessions will not promote products, brands or incentives, and will give a balanced view of all therapeutic options available for good quality patient management.

Information presented is unbiased and based on scientific evidence.
The Hearing System
Hearing Loss

Conductive
Sound Transmission Breakdown
Outer & Middle Ear

Sensori-Neural
Cochlea/Neural Breakdown
Conductive Hearing Loss

1. Eustachian tube dysfunction
2. Cholesteatoma
3. Wax
4. Otitis media
5. Otosclerosis
6. Ossicular disorders
Conductive Hearing Loss - Wax
Conductive Hearing Loss – Otitis Media

Diagram showing the effects of Otitis Media on the middle ear compared to a normal middle ear.
Conductive Hearing Loss – Otitis Media
Conductive Hearing Loss - Otosclerosis
Sensorineural Hearing Loss
Sensorineural Hearing Loss

Healthy Hair Cells

Damaged Hair Cells
Causes of Permanent Hearing Loss

• Hereditary
• Ototoxic drugs
• Virus
• Noise Induced Hearing Loss (NIHL)
• Aging/Presbycusis
Main types of Sensorineural Loss

Presbyacusis

• Age Related and wear & tear
• Hair cell damage, high frequency hearing affected first
• Bilateral

Affects

• Clarity/speech intelligibility
• Volume

People with hearing loss…

• Over 60 – 1 in every 2 (55%)
• Over 80 – 9 out of 10 (93%)
Main types of Sensorineural Loss

Noise Induced Hearing Loss (NIHL)

- Mainly high frequencies
- Bilateral
- Historically difficult to correct
- Problem with clarity/
  Speech intelligibility
- Volume is not usually affected
Sensorineural Hearing Loss
The Impact of Untreated Hearing Loss

Communication Difficulties
Cognitive
Quality of Life & Overall functioning
Depression & Social isolation
Social and Emotional decline
Frustration and Tiredness

When someone in the family has a hearing problem, the whole family has a hearing problem.

Dr. Mark Ross
Untreated Hearing Loss

Individuals with mild hearing loss were twice as likely to develop dementia as those with normal hearing.

Dr. Frank Lin, Johns Hopkins University

Self-reported hearing loss is associated with accelerated cognitive decline in older adults; hearing aid use attenuates such decline.

Amieva et al; 2015

The difference in age-equivalent to the cognitive reduction associated with a 25 dB increase in hearing loss is 7 years.

Lin, 2013
Research on the Correlation between Hearing Loss and Cognitive Ageing

Older patients with hearing loss significantly more likely to develop dementia over time compared to those with normal hearing.

- Hearing loss leads to social isolation
- Increased cognitive load due to listening effort

What can be done?

- Nothing?
- Hearing Therapy?
- Assistive listening devices?
- Hearing Aids?
- Cochlear Implants?
Hearing Therapy

Listening strategies
Assistive Listening Devices

Amplified telephones

Wireless headphones for TV

Integrated home systems
Amplification through Hearing Aids

Open Fit Behind the Ear

Receiver in the Ear

In the Canal

Behind the Ear

In the Ear
Advances in Hearing Aid Technology

- Smaller, lighter
- Better feedback management (SQUEALING)
- Faster processing
- Better performance in crowds and background noise
- Water and dust resistance
- Wireless - Mobile phones, TV
- CROS and BiCROS systems
Levels of Hearing Aid Technology

Hearing aids come in a range of technology levels. The highest levels of technology are the closest we can get to the normal hearing experience. The technology level also determines the price.

- High End: Elite
- Mid Range: Advanced, Active
- Low End: Essential, Basic

PERFORMANCE
SATISFACTION
PRICE

Highest

Lowest
Funding options for Hearing Aids

• Hearing Aid Subsidy (Ministry of Health)
• Ministry of Health Hearing Aid Funding
• War Pensions (Veterans Affairs NZ)
• ACC
• WINZ Loan (Work and Income)
Can Amplification Prevent or Reverse Cognitive Decline?

- Hearing aids
  - Have a positive effect on overall quality of life,
  - Help reduce isolation,
  - Reduced cognitive load.

Research supporting positive long term effect of amplification on cognitive functioning is ongoing.
Cochlear Implants
What is a Cochlea Implant?

- Medical device with external (Speech Processor and Transmitting Coil) and internal parts
- Direct stimulations of the auditory nerve
- External speech processor captures sound and converts it to a digital signal
- Processor sends digital sound to the internal implant
- Internal Implant converts to electrical signal, sent to the electrical array
- Electrodes stimulate auditory nerve directly
Eligibility Criteria

Adults:

- Severe to profound bilateral hearing loss
- Limited benefit from hearing aids – must be a ‘good’ hearing aid wearer
- Eligible for publically funded health services
- Must pass the assessment tests
  - audiological, scans, psychological
- **No maximum age criteria**
Funding of Cochlear Implants

Full Funding
- Includes assessment, device, surgery, audiology services, maintenance and support, rehabilitation, replacement
- Does not include batteries, repairs and spare parts for speech processors
- Only 1 implant is funded for adults (except in cases of meningitis)

Partial Funding is also available in some cases
Who Can Refer

- NCIP  www.ncip.org.nz  (Taupo North)
- SCIP  www.scip.co.nz  (Rest of NZ)

Referrals can be made by:
- ENT specialists
- Audiologists
- Advisors on Deaf Children
- GPs
Role of the GP in Hearing Related Issues

- Long term relationship of trust - refer to audiologist

- Widespread impact on overall health, well-being and independence.

- Promotes healthy ageing
Hearing Loss in General Practice

How can you detect hearing loss in your patients?

Ask these questions:

• Do you often think people mumble?
• Do you ask others to repeat themselves?
• Do your family members tell you the TV is too loud?
• Do you have difficulty hearing when someone faces away from you?
• Do you find that background noise frequently overwhelms your ability to hear conversation
• Do you feel like you miss out on the conversation in a group, miss the punch lines, or have difficulty keeping up?
Denial and Avoidance is Common!

The lengthy road to better hearing...
- Ignorance and denial
- Accommodation and avoidance
- Isolation and depression

External events prompt action
- Comment from a friend or family member
- Embarrassment
- Advertisement

Any reported difficulty hearing at home or work?
- Often first signs are difficulty in crowds or background noise, or has the TV turned up too loud for others.

GP plays key role in prompting action
When to refer to an Audiologist

- Patient concerns
- Unsure about hearing levels
- Tinnitus assessment
- Unilateral HL or tinnitus – ENT referral
- Sudden loss – **immediate** ENT referral

Refer earlier rather than later, no matter the level of difficulty.
The Hearing Consultation Appointment

To determine degree and nature of hearing loss and need for referral and/or rehabilitation (45-60 minutes)

In the appointment:
• Review case history and additional hearing and medical information with client
• Identify potential funding streams.
• Complete needs assessment to understand clients communication needs
• Perform otoscopy, pure tone and speech audiometry and acoustic immittance testing
• Interpret results and communicate to client.
• Address any reason for referral and relate back to needs assessment.
• Report to GP/referrer, with copy to client
Interpreting Audiograms

Pure-tone audiometry

- R Frequency (Hz)
- L Frequency (Hz)

Intensity (dB HL)

Classical Noise Induced Loss

Classical Age Related Loss

Speech audiometry

- Percentage (%)

Better discrimination

Worse discrimination

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The Device Consultation Appointment

To determine or confirm client’s listening needs and make a rehabilitation recommendation (30-45 minutes)

In the appointment:

• Establish any new information since last appointment
• Set up hearing aid demo if appropriate
• Confirm hearing needs and commitment to proceed with hearing aids discuss queries/concerns
• Establish measurable goals
• Review hearing aid options with client covering style, technology and price using visual aids (match hearing needs with financial needs)
• Provide take home materials
• Explain what happens next and discuss expectations
The Myths About Hearing Loss

“My wife is very softly spoken.”
The Myths About Hearing Loss

“My husband mumbles.”
“It’s the children of today, they speak so fast…”
The Myths About Hearing Loss

“I hear very well. I hear well when its just me and one person.”
The Myths About Hearing Loss

“That’s normal for my age, so I don’t really have to do anything about it.”
Healthy Hearing -
The maintenance of quality of life by ensuring hearing is not a barrier to social interactions and communication.
Key Points

• Hearing loss is very common – particularly in the over 65 age bracket.
• The most common causes of permanent hearing loss are age, and noise exposure.
• Hearing loss reduces an individual’s quality of life.
• These detrimental effects can be reduced by using assistive listening devices, good listening strategies, hearing aids or cochlear implants.
• Medical professionals play a cardinal role in ensuring that patients access the necessary help timeously.
Feel free to contact us for a copy of the presentation or for any audiology enquiries:

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Any Questions?