Hearing Loss and Alzheimer’s Disease: It’s a Family Affair

It is not an uncommon condition!
• Effects 48 million Americans
  • From 2000 to 2015, the number of Americans with hearing loss has doubled
  • The 2nd most prevalent health issue globally
    • More than those living with Parkinson’s, epilepsy, Alzheimer’s and diabetes combine
• At least 33% of Americans between ages 65-74 and nearly 50% of 75+ have hearing loss.
• Hearing health foundation and NIDCD
Causes of Hearing Loss

- Aging
- Noise exposure
- Family history
- Head trauma
- Virus or diseases of ears
  - Otosclerosis and Meniere’s disease
- Medical conditions – heart disease, diabetes and stroke
- Ear infections or impacted wax/foreign body
- Malformation of ear

Signs of Hearing Loss

- Socially
  - Frequently asking people to repeat themselves
  - Experience difficulty following conversation in groups of two or more
  - Report others are mumbling, especially women and children
  - Struggle to understand in background noise – conferences, restaurants, malls, or crowded meeting rooms
  - The volume on the TV or radio is louder than others would prefer, turned up to a high volume
  - Answer or respond inappropriately in conversations
  - Find that you are able to hear better if you can see someone face to face.
  - Trouble over the telephone

Signs of Hearing Loss, cont’d

- Emotionally
  - Irritation, anger and frustration during conversations
  - Lose desire to participate in social situations that you once enjoyed
  - Frequent fatigue or bouts of depression after interaction.
  - Expressed loneliness, isolation and confusion
  - Feel nervous about trying to hear and understand
  - Appearance of memory loss and lack of desire to try new things
Prevalence of Alzheimer’s Disease

- 5.5 million Americans are living with Alzheimer’s disease
- 5.3 million are 65 and older
- Life expectancy
  - Disease may progress over two to 2 to 20 years
  - May live eight to 10 years from diagnosis
- Sixth leading cause of death in US
- The number of persons with Alzheimer’s disease is expected to grow exponentially over next 25 years

Causes of Alzheimer’s Disease

- Aging brain
  - 65 and older = one in nine diagnosed
  - 85 and older = one third diagnosed
- Genetics
  - Those who have family members with AD may be more likely to develop
- General health and environment
  - Head injury
  - Heart disease

Signs and Symptoms of Alzheimer’s Disease

- Memory loss that disrupts daily life
- Challenges in planning or solving problems
- Difficulty completing familiar tasks
- Confusion with time or place
- Trouble understanding visual images or spatial relationships
- New problems with words in speaking or writing
- Misplacing things and losing ability to retrace steps
- Decreased or poor judgement
- Withdraw from work or social activities
- Changes in mood and personality
### The relationship between Hearing Loss and Alzheimer’s Disease

- When comparing the lists for early signs for hearing loss and Alzheimer’s there are several commonalities...
  - Withdraw from social activities, trouble remembering recent events, easily confused
- The importance of the John Hopkins study
- Is there a direct link between poorer hearing and reduced cognitive function?

### John Hopkins Studies

- Frank Link, MD and colleagues
- The objective was to determine if a relationship exists between hearing loss and increased risk of Alzheimer’s disease
- **2011 study**
  - Observed cognitive health of 639 people over 12-18 years
  - Frequently measured subjects mental abilities
  - Results = Those subjects that began the study with higher degrees of hearing loss were more likely to develop dementia vs those with normal hearing

### Johns Hopkins, Cont’d

- **2013 study (Dr. Lin and colleagues)**
  - Followed overall cognitive abilities (concentration, memory and planning skills) of approximately 2,000 adults with average age of 77
  - Results six years later revealed those subjects that had measurable hearing loss at the beginning of the study were 24% more likely to experience cognitive decline vs those subjects with normal hearing
The Link Between Hearing Loss and Alzheimer’s Disease

• The association between HL and AD is more widely accepted by the medical community
• However, it is more than likely that there isn’t just one common “link” between hearing and cognition
• Both HL and AD are complex and maybe interconnected by several different links/factors
  • Aging, heredity, environmental and lifestyle

Link Between HL and AD, Cont’d

• Dr. Lin suggests four ways HL may contribute to cognitive decline:
  1. Cognitive overload = increased stress on brain due to constant strain of trying to hear and understand
     • Brain exhausts resources that would otherwise use for encoding. May effect short term memory
  2. Hearing impairment may change brain structure
     • Brain imaging suggests that there may be reduced amount of gray matter due to reduced stimulation

Link, Cont’d

3. Social isolation
   • Less likely to engage because of effort needed to communicate

4. Possible shared physiological pathway between HL and AD
   • Not as widely accepted as researches often use statistical methods to account for common factors between HL and AD
Hearing Healthcare and Alzheimer’s Disease

- Referral to an audiologist who specializes in adults/geriatrics
  - Often handled by PCP or their staff
- What to expect from an audiological consultation
  - Family/POA is encouraged to attend appointment
  - Thorough case history and lifestyle assessment where input is requested from both family and patient
  - Establish hearing/communication goals that are important for both the family and patient

Hearing Healthcare and Alz’s Disease, Cont’d

- Comprehensive hearing evaluation
- Recommendation that addresses communication goals determined by Audiologist, family and patient
- Expect treatment plan to be ongoing and may evolve over time

Family-Centered Care – Where do you fit in?

- “Family-centered care provides care to patients and family members that is responsive to individual patient and family preferences, needs and values and ensures that patient and family values guide all clinical decisions.”
- Benefits of family-centered care (FCC) for family/caregiver
  - Family member to feel supported in the hearing healthcare process
  - A better understanding of the effects of hearing loss for the patient
  - Be an active participate in the recommendation
FCC, Cont’d

Benefits of FCC for the patient...
- Patient more likely to experience improved hearing healthcare
- Increased compliance with recommendations/treatment
- More successful hearing aid users

Benefits of FCC for provider...
- Allow Audiologist to engage family and patient in team approach
- Support family/caregiver in involvement in care and maintenance of HAs and/or assistive devices
- Encourage and reinforce HA use and positive outcomes

The ultimate goal of the FCC approach is to provide solutions that will decrease the stress associated hearing impairment

Benefits of Hearing Aid Use

- Reduced cognitive decline
- Decrease in negative behaviors (agression, mood swings, etc)
- Improvement in social and emotional well being

Hearing Aid Options

- Introduction to anything new can be frustrating and overwhelming for the patient
- Before deciding to pursue hearing devices understand all the terms and conditions
  - Trial period, warranty and L&D coverage and costs associated with follow-up visits
- Realistic expectations and maintenance
- Rechargeable technology
- Wireless accessories
What to do when hearing aids aren’t appropriate or enough?

- ALDs – Pocket talker
- Caption phones
  - Widely accessible
  - Some do not rely on relay service but would require access to internet
- Communication strategies
  - Get their attention first by saying their name or placing hand on their arm/shoulder
  - Avoid noisy environments, such as restaurants, at their busiest times or try sitting off to the side
  - Sit in well-lit areas
  - Make eye contact and speak slowly and clearly
  - Repeat word for word if family member requests repetition
  - Check in that they heard and understood by asking “Does that make sense to you?” or “How do you feel about ______?”

Case Studies and Q&A

Resources

- Dawes P. 20Q: Hearing Loss and Dementia – Association, Link or Causation? Audiology Online. Article 19111
- Griffin K. Hearing Loss Linked to Dementia. [www.aarp.org](http://www.aarp.org), April 2015