Hearing Loss Linked to Dementia

Can getting a hearing aid help prevent memory loss?
by Katherine Griffin, AARP, August 8, 2013

"The general perception is that hearing loss is a relatively inconsequential part of aging," says Frank Lin, M.D., an otologist and epidemiologist at Johns Hopkins University. But recent findings, he says, suggest that it may play a much more important role in brain health than we've previously thought.

Fortunately, there's a potential upside. If this connection — shown in several recent and well-regarded studies — holds up, it raises the possibility that treating hearing loss more aggressively could help stave off cognitive decline and dementia. Lin and other researchers have several theories about the possible cause of the link between hearing and dementia, although they aren't yet sure which of them — if any — will hold true.

Lin is the author of several recent studies pointing to a link between hearing and cognitive problems ranging from mild impairment all the way to dementia.

In a 2013 study, he and his colleagues tracked the overall cognitive abilities (including concentration, memory and planning skills) of nearly 2,000 older adults whose average age was 77. After six years, those who began the study with hearing loss severe enough to interfere with conversation were 24 percent more likely than those with normal hearing to have seen their cognitive abilities diminish. Essentially, the researchers say, hearing loss seemed to speed up age-related cognitive decline.

In a 2011 study focusing on dementia, Lin and his colleagues monitored the cognitive health of 639 people who were mentally sharp when the study began. The researchers tested the volunteers' mental abilities regularly, following most for about 12 years, and some for as long as 18 years. The results were striking: The worse the initial hearing loss, the more likely the person was to develop dementia. Compared with people of normal hearing, those with moderate hearing loss had triple the risk.

"I have a [90-year-old] grandmother who's had a moderately severe [hearing] loss for many years now," says Lin. "She's sharp as a tack. I was talking to her about [my] research and she looks at me and says, 'Are you telling me I'm definitely going to get dementia?"
"I said, '[Not by] any means.' "

What's more, while the link between hearing loss and milder cognitive problems is becoming increasingly accepted, some researchers aren't convinced that hearing loss raises a person's chances of developing dementia. "Everyone in the field agrees that hearing loss is a risk for cognitive problems," says P. Murali Doraiswamy, M.D., a professor of psychiatry at Duke University and author of The Alzheimer's Action Plan. "But I don't think the field takes mild hearing loss as a cause of Alzheimer's seriously yet." Nor, he says, do most researchers agree that hearing loss is related to other common types of dementia. Still, he adds, "There are plausible reasons for why hearing loss might lead to dementia — the brain's hearing centers are very close to the regions where Alzheimer's first starts."

4 ways hearing loss can lead to dementia

How might hearing loss contribute to cognitive problems and dementia? Lin suggests four possibilities. The most obvious is a common physiological pathway that contributes to both hearing loss and cognitive decline — something like high blood pressure, for instance. But in the studies, the researchers used statistical methods to take into account the factors known to be associated with both conditions, so Lin doesn't give this explanation much credence.

Another possibility has to do with what researchers refer to as "cognitive load" — essentially, that the effort of constantly straining to hear stresses the brain. "If you put in a lot of effort just to comprehend what you're hearing, it takes resources that would otherwise be available for encoding [what you hear] in memory," says Arthur Wingfield, who heads the neuroscience program at Brandeis University. Research in Wingfield's lab has documented this effect on a short-term basis; the big question, he says, is whether years of drawing resources away from brain functions like working memory eventually reduces the brain's resilience.

A third factor, Wingfield and Lin suggest, is that hearing loss may affect brain structure in a way that contributes to cognitive problems. Brain imaging studies, Wingfield says, show that older adults with hearing loss have less gray matter in the part of their brain that processes speech. "It's not necessarily that you're losing brain cells," he adds. Certain parts of the brain cells are known to shrink when they don't get enough stimulation. This suggests, he says, that getting clearer speech signals to the brain might allow these brain structures to grow back to their previous size and function.

Finally, it seems very likely that social isolation plays a part. Being hard of hearing tends to isolate people from others: When you have to struggle to converse, you're less likely to want to socialize in groups or go out to restaurants. And being socially isolated has long been recognized as a risk factor for cognitive decline and dementia. It will probably take much more study to tease out what factors might be at play, Lin says.

Most important, he says, is to find out whether providing state-of-the-art hearing loss treatment can prevent or delay cognitive decline and dementia. Lin is just beginning to plan a study to look closely at this question.
He and other researchers will monitor a large group of older adults with hearing loss. Half will get best-practice hearing treatment and the other half will get what Lin calls "watchful waiting." Over the following three to five years, researchers will track the participants' cognitive functions. The results won't be available until 2020 at the earliest.

In the meantime, Lin says, if you have hearing loss, it makes sense to get it treated as well as it possibly can be. There's lots of room for improvement — fewer than 15 percent of those with a clinically significant hearing loss even use hearing aids.

For more about how to select and adapt to the right kind of hearing aid, see "How to Get the Right Hearing Aid."

This article is part of an ongoing series on brain health as part of the Brain Health Resource Center. Katherine Griffin is a writer and editor in the San Francisco Bay Area.