

Focus

Age-related hearing loss: pitfalls and problems

John Scott is a geriatric medicine registrar at Waitakere Hospital in Auckland

Ageing and hearing

Mr E is a fit 76-year-old retired taxi driver. For some time now he's noticed that people mumble a lot and he also has difficulty hearing the conversation at the RSA. Even worse, his wife is badgering him to have his hearing tested – but he feels he's pretty good for his age, and anyway he's sure he doesn't miss the important stuff.

Hearing loss is common and the older the person, the more likely it is there will be a hearing disability. Proper assessment and management of this has the potential to significantly improve the quality of life of many of our patients.

How common is hearing loss? Prevalence data from New Zealand are scarce, but international studies suggest that presbycusis is one of the top five major chronic disabilities in the over 65 population.¹ Individual studies of prevalence report different numbers, in part because the definitions of "significant" hearing loss vary, and according to whether "test-centred" (ie, audiometric) or "patient-centred" (ie, quality of life/handicap) parameters are studied.

However, to generalise, in the age decade from 65 to 74 about one-quarter of community dwellers will have significant hearing loss; this increases to perhaps 40 per cent of those over 75 and up to 70 per cent of those in residential care.² Men, and those with a low educational level, are at increased risk.³

The chances are, however, if you were to poll a random sample of your older patients, your numbers would fall a long way short of this. Why? We know that the number of people who seek help for hearing symptoms is only a fraction of those affected. There are many reasons, including:

- Age-related hearing loss develops gradually and the disability it produces may at first seem inconsequential; a person may only experience difficulty when their hearing is given a "stress test" (eg, listening to speech in a noisy room) but may be unaffected in one-to-one conversation (such as in a doctor's surgery).
- The common belief that hearing difficulty is an inevitable part of ageing – a "normal" event, and therefore something to be borne without complaint.
- In contrast to those with visual loss, the hearing impaired must

KEY POINTS

- From age 65 to 74 about one-quarter of people will have significant hearing loss, increasing to 70 per cent in residential care. Men, and those with a low educational level, are at increased risk
- The number of people who seek help for hearing symptoms is only a fraction of those affected
- The GP's role is to search for "flags" which might suggest the cause of hearing impairment is something other than age-related presbycusis
- Because most older people who could benefit from a hearing aid don't have one, or won't use their device, health professionals need to be proactive about suggesting solutions
- Assistive Listening Devices (ALDs) contain all the components of a hearing aid, but a

- contend with widespread indifference to their problem.
- d. Many older persons have family or friends who have had unsatisfactory experiences with a hearing aid. Lack of knowledge about how to obtain help, and concern that the process of getting help may be slow and expensive – concerns which may unfortunately be justified.

remote microphone transmits a signal directly to a receiver worn by the patient

Assessment and treatment

The general assumption is that a person with hearing loss will report a problem, often to their GP, although sometimes it is the caregiver or spouse who initiates the assessment. The GP's role is to search, in particular, for "flags" which might suggest the cause of hearing impairment is something other than age-related presbycusis. These include historical features such as pain, tinnitus or vertigo or strongly unilateral symptoms, or findings on examination such as earwax impaction, signs of middle ear disease or other abnormality. Should this be the case, referral to the nearest ORL service is indicated.

Earwax impaction should never be missed but is common. A recent survey of 50 patients at Waitakere Hospital revealed that in over one-third of cases one or both eardrums were completely obscured by wax.

Assuming there are no untoward findings, patients should be referred for a pure tone audiogram. This will quantify the severity of hearing loss and provide further support for the type of impairment (conductive, sensorineural or mixed) and again whether there are features that point towards a need for otolaryngological assessment.

If significant auditory loss is demonstrated on pure tone audiogram in a person who has a complaint of hearing loss then generally speaking a hearing aid prescription is indicated. A discussion of the various types of hearing aid is beyond the scope of this article; for further detail see Giles 1999.⁴

This description of the process of diagnosis and treatment is fairly straightforward; but it is at odds with the reality of many people's experience. Put simply, most older people who could benefit from a hearing aid don't have one, or if they do it is not used. To understand why, we need to look at the barriers that stand in the way of successful hearing aid fitting and use in the older New Zealander.

Problems with getting and using aids

Mrs D, 80, has been brought into hospital with a urinary tract infection and confusion. Admitting staff are finding communication difficult, not only because of her disorientation but also because she doesn't seem to have a hearing aid, even though she's obviously pretty deaf. After talking to her daughter, it seems she obtained an aid five years ago but no longer wears it; she never liked it much, it was fiddly to put in, either things weren't loud enough or they were too loud, the batteries didn't last, and all in all for \$1000 it was pretty disappointing. It's sitting in a drawer at home.

Unfortunately this sort of story is common. Popelka et al in Wisconsin found that the prevalence of hearing aid use in people with moderate hearing loss was 15 per cent, and still only 55 per cent in people classed as having severe hearing impairment.⁵

Why don't older New Zealanders present for assessment of their hearing symptoms and, if hearing aids are prescribed, why are they not always used?

As described above, the first barrier to solving the problem is to overcome lack of awareness of the problem and apathy among older people. While this is easier said than done, health professionals can help by being informed about the problem and proactive about suggesting solutions.

Data from the US suggest very few doctors screen their older patients for hearing loss.²

Considering this is a condition that is underreported, easy to diagnose and amenable to treatment, a good case can be made for screening at-risk individuals. Several questionnaire-based instruments have been developed to enable this.^{2,3} Free screening is available from the Hearing Association.

The process of obtaining an assessment is often time-consuming and may involve multiple

appointments at different sites. Otorhinolaryngology services, GPs and audiologists do not all operate under the same roof. Often the older person who lacks an attentive friend or relative to remind, organise or transport them can find themselves effectively barred from services even when provided free by the public health system. Waiting times in the public system for ORL or audiology assessment can be many months, with arbitrary variations in access criteria according to where a person lives.

The lack of requirement for hearing aid dispensers or those who conduct hearing tests to be properly trained or registered in New Zealand means private operators exist who may provide poor service at a high price. This will increase the chance of a poor outcome, and exacerbate the impression many elderly have of hearing aid services.

Cost is a major issue for many elderly people. ACC and war pensions fund some hearing aids, but for most older people the only financial assistance available is a subsidy of \$89.10 – enough to cover perhaps 10 per cent of the cost of a standard hearing aid.

The gap between expectation and reality can be significant. Many older people expect hearing aids to correct hearing in the same way that spectacles correct refractive errors. Hearing aids amplify sound but they do not return hearing to normal. At first, the person may feel overwhelmed by sound input and must learn to tune out unwanted sounds. The ability to interpret the amplified sound produced by a hearing aid is a learned skill, not a passive process, and the importance of pre-fitting counselling and post-fitting assessment, encouragement and education of patient and family cannot be overstressed.

Although it should be stressed that hearing aids do improve the quality of life in the majority of hearing impaired older people, with improvements in social, emotional and quality of life measures,⁶ nonetheless many elderly who are prescribed a hearing aid eventually stop using it. Popelka's study reported that 29 per cent of hearing aid owners no longer used their aid. Sorri et al⁷ reported that fewer than half of those over 75 who owned aids used them regularly. Some problems are obvious – a certain amount of dexterity and patience is needed to insert aids and use the controls. However, proper matching of aid to client should overcome this, and no one should come away from a hearing aid fitting with a device they cannot manipulate. Even an aid that initially does the job well may not be suitable five or 10 years later so it is important to reassess suitability and performance over time.

One possibility to explain the relative lack of success of the elderly with amplification is the concept of "auditory processing disorder". This term refers to the fact that, even when the degree of peripheral hearing loss is controlled and corrected, many older people have more difficulty interpreting speech than their younger peers.⁸ A number of possible mechanisms have been suggested to explain this:

1. There is often a long delay – up to 10 years in some studies – between the first sign of a problem and fitting of a hearing aid. As a result, it is hypothesised that central (brainstem and subcortical) hearing pathways in older people, desensitised by years of degraded input, deteriorate and are no longer able to cope with new demands put on them when amplifying devices are eventually provided (if you don't use it, you'll lose it).
2. Attending to and understanding speech places many demands on the brain; impairment in general cognitive abilities such as attention, concentration or memory will lead to communication difficulties not correctable by amplification. The ability to "selectively attend" to certain stimuli and block out others (necessary to hear speech against background noise) is likely to be diminished, especially in the cognitively impaired older person. In the extreme, amplification may produce a cacophony of confusing sounds, and may make comprehension worse, not better.

Assistive listening devices

Mrs E is 90, has advanced dementia and lives in a rest-home. She is mobile and usually placid, but is also very deaf. She used to have a hearing aid but a few months ago a staff member, forgetting that Mrs E couldn't put her aid in herself, handed it to her, whereupon she mistook it for a toffee and ate it. Since then people have been shouting into her ear, but Mrs E seems to understand what's being said only about half of the time. As a result it's much harder to get her to do things and the staff are getting frustrated and impatient with her.

Conventional hearing aids are miracles of miniaturisation: they must incorporate a microphone, battery, amplifier and speaker and, in the case of digital aids, complex speech processing

algorithms all in one relatively minute package.

While hearing aids suit most people most of the time, the development of assistive listening devices (ALDs) offers a further option for specific situations that occur not infrequently in older people. An ALD contains all the components of a hearing aid, but the speaker wears or speaks into a remote microphone and the signal is then transmitted (by infrared, FM, magnetic induction loop or direct wire), directly to a receiver worn by the patient.

The signal to noise ratio is thus improved; therefore, they may be more helpful for our older patients whose problem is with discrimination of useful auditory information from background noise. Stach and Hudson noted that a significant number of older hearing aid users who had become dissatisfied with their devices over time preferred an ALD.⁹

They also offer several other advantages:

1. Professional people such as doctors, nurses, lawyers and others who might need to communicate with the hearing impaired at any time can benefit from such a unit, which can also incidentally give the patient a taste of what amplification might achieve.
2. They can be used by untrained staff to communicate with persons who do not understand how to insert or use a conventional aid, eg, the woman with dementia portrayed above.
3. They are cheaper than standard hearing aid technology

An assistive listening device should be considered for patients who gain limited benefit from conventional amplification.

Conclusions

There are many potential pitfalls and potholes on the road to adequate diagnosis, treatment and management of hearing impairment in our older patients. Some areas, such as service provision and subsidy reform, require an act of political will before change occurs. In other areas, however, such as screening high-risk individuals, patient education and counselling, ongoing follow-up, and taking an active approach to managing this common disability, the potential is there for GPs to help people with this "invisible" disability.

References

1. Rowland M. Basic data on hearing levels of adults 25-74 years: USA 1971-75. Vital and Health Statistics 1980; Department of Health, Education and Welfare Publication No. 80-1663.
2. Jerger J, Chmiel R, Wilson N, et al. Hearing impairment in older adults: New concepts. J Am Geriatr Soc 1995;43:928-35.
3. Reuben DB, Walsh K, Moore AA, et al. Hearing loss in community-dwelling older persons: National prevalence data and identification using simple questions. J Am Geriatr Soc 1998;46:1008-11.
4. Giles M. Hearing Aids: A Guide for General Practitioners. New Ethicals 1999;August:55-63.
5. Popelka MM, Cruikshanks K, Wiley T, et al. Low prevalence of hearing aid use among older adults with hearing loss: The epidemiology of hearing loss study. J Am Geriatr Soc 1998;46:1075-78.
6. Mulrow C, et al. Quality-of-life changes and hearing impairment: A randomised trial. Ann Intern Med 1990;113:188-94.
7. Sorri M, Luotonen M, Laitakari K. Use and non-use of hearing aids. Br J Audiol 1984;18:169-72.
8. Jerger J. Can age-related decline in speech understanding be explained by peripheral hearing loss? J Am Acad Audiol 1992;3:33-38.
9. Stach B, Hudson M. Clinical experience with assistive listening devices in adults. Paper presented at American Academy of Audiology Annual Convention, Denver Co, US, 1991 [cited in reference 3]

