HEARING DISTORTION ASSOCIATED WITH MENIERE’S DISEASE

By Myriam Westcott BSc, Grad Dip Aud, MAudA (CC)

The hearing loss associated with Meniere's disease is usually a fluctuating low frequency (bass sounds) sensorineural hearing loss in the early stages, which flattens out to affect all frequencies in the later stages. As well as loss of volume, distortion of hearing is common with a sensorineural or inner ear hearing loss. This distortion is due to a number of causes, as follows:

Recruitment

A phenomenon called ‘recruitment’ almost always occurs in the affected ear, typically early in the disease. Recruitment affects perception of the ‘rate of growth of loudness’ of sounds, where a small increase in volume can be perceived as a large jump. As a result, impact sounds and loud sounds (even moderately loud sounds) can seem abnormally loud in the affected ear, and may reach the threshold of discomfort or pain. You are likely to startle more in response to sudden sounds, particularly if they are unexpected. An evaluation of your loudness discomfort levels (LDLs) as part of your hearing assessment will allow your degree of recruitment at different frequencies to be identified.

Hearing aids can be programmed to cater for recruitment: the maximum power output can be capped so that sounds cannot be amplified above your LDLs, and compression levels can be set to suit your ‘rate of growth of loudness’. Sophisticated hearing aids allow for different compression levels to be set at different frequencies to match your individual requirements.

Loss of clarity

There is likely to be a loss of clarity of hearing in the ear affected by Meniere's disease as a result of damage to the inner ear. For example, a pure tone heard clearly in the good ear can sound fuzzy and muffled in the affected ear. A loss of clarity is likely to be quite noticeable in comparison to the unaffected ear, especially if you have normal hearing in that ear. This results in reduced speech discrimination ability making communication difficult - especially in background noise or when using the telephone.

As a result you will need to concentrate harder to understand speech, even at comfortable volume levels, and you may notice that your hearing loss is more of a problem if you are feeling tired, sick or unwell, due to reduced concentration at those times. You will find it easier to have a one on one conversation in quiet, and you are likely to find you tire more quickly after a conversation in more challenging situations. Look after your concentration and fatigue levels, making sure you are well rested before you go to a group event.
Many people speak quickly, and asking others to slow their speech rate will give you time to process the parts of their speech that you may be missing or mishear. This is a useful strategy, as it often leads to clearer articulation – it is harder to mumble if you speak slowly!

Speech discrimination ability is evaluated as part of a hearing assessment. Generally - the more severe the hearing loss the greater the loss of clarity and the greater the degree of distortion. The amplification provided by a hearing aid will compensate for the volume loss but will not overcome distortion, and it is important to have realistic expectations of the benefit of aid use in a highly distorted ear. The benefit of aid use in this case may have more to do with tinnitus management and having a sense of connection to the environmental sounds on that side (both important issues), rather than providing clear speech intelligibility.

Occlusion effect
The normal resonance of the ear canal is affected by blockage from a hearing aid. As a result, when you are first fitted with a hearing aid your voice will sound strange to you – like being in a tunnel, as well as louder due to amplification. This “distortion” is common for all hearing aid users, and is known as the “occlusion effect.” Certain types of hearing aids are less occluding, and hearing aids can be fine tuned to minimise this effect. However, you will need to adapt to the altered sound of your own voice.

Frequency distortion
The fluctuating low frequency (bass sounds) sensorineural hearing loss associated with Meniere’s disease in the early stages, which is often perceived as a drop in volume, means that you are likely to have a bass/treble distortion in sound quality, often with a “tinny” quality if high frequency hearing has been preserved.

An acquired hearing loss changes the way you interact with the people around you and the way they interact with you, which will have an impact on you and your relationships. It is important to have understanding and support from your family and colleagues. The implications of a fluctuating hearing loss - distorted hearing and your increased need for concentration - are a hidden handicap which is often poorly understood by others. It can readily be attributed to other factors, such as rudeness, lack of interest or the development of dementia.

Hearing aids
Living with Meniere's disease can be stressful enough without the added burden of poorly managed communication difficulties. Many people with Meniere’s disease use hearing aids successfully. With the advances in hearing aid technology and the increased knowledge and skills of audiologists who fit them, there are very few people with a hearing loss who cannot obtain benefit from using a hearing aid(s).

Environmental sounds can seem unnaturally prominent or noticeable for the first few weeks with a new hearing aid. It takes time for the brain to become familiar with these sounds and tune them away into the background. For this process of neural adaptation to occur, and if your hearing loss has stabilised, you are best advised to wear your hearing aid(s) for most of the day – and your hearing aid needs to fit comfortably to allow this. If you use your hearing aid on an occasional basis you are likely to feel awkward with it, and are less likely to adapt fully. Your aim is to have what you hear through the hearing aid(s) become ‘normal’.

Contemporary hearing aids automatically adjust and set the required volume for each sound heard, providing sufficient volume for soft speech sounds, while at the same time limiting amplification of
louder environmental sounds. This allows you to hear speech comfortably while also being protected to very loud sounds. Many hearing aids don’t require a volume control. However, if your hearing loss fluctuates, it may be better to select a model with a volume control.

If your hearing fluctuates, you and your audiologist may consider it better to program the aid to cater for the more severe fluctuation levels and just use it at those times or perhaps set it to the most ‘stable’ level of your hearing. Most hearing aids have multiple listening programs for different environments, and can automatically adjust to optimise speech in noise discrimination. In rare cases where a hearing loss becomes severe/profound in both ears, a cochlear implant may be an option.

The level of technological sophistication should be matched to your communication needs, handling abilities and budget. People who rarely communicate in groups or significant levels of background noise may not require a sophisticated and expensive level of hearing aid technology. Cosmetic concerns, ease of handling/dexterity and degree of hearing loss will influence the choice of size and appearance of the hearing aid(s). Inappropriate hearing aid choice can increase the level of hearing disability you are experiencing if you cannot manage the complexity or size of your hearing aids.

Ideally, your audiologist will guide you in making an informed hearing aid choice, taking into account the required level of technological sophistication, the size and the cost. You (and your family) should be advised of both the advantages and the limitations of hearing aid use with your individual hearing loss - both generally, as well as with your particular hearing aid choice. This will enable you (and your family) to have realistic expectations of the benefit you are likely to obtain.

If you are a full/part pensioner, or have eligibility through the Department of Veteran’s Affairs, you will be entitled to obtain hearing aids through the Office of Hearing Services. Your general practitioner will need to sign an application form, and you will be able to choose a basic model at no charge or a more sophisticated model at a charge.