Managing Ménière’s disease in elderly patients

Despite classically appearing in a younger age group, Ménière’s disease remains a significant cause of dizziness in the elderly population. The non-specific pattern of symptoms can make the disease difficult to diagnose and no firm consensus exists on the most effective treatment.

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Ménière’s disease is a chronic illness characterised by intermittent episodes of vertigo with associated sensorineural hearing loss, tinnitus and sensation of aural pressure. It is a challenge to diagnose, difficult to manage and has an aetiology that is not fully understood. It was first described by French physician Prosper Ménière as an inner ear disorder in 1861.¹

The disease is episodic and fluctuant, with attacks lasting from minutes to several hours, separated by intervals of a few days to several years. Not all of the features of Ménière’s may be present coincidentally and the disease is therefore often misdiagnosed in its early stages. It has been further classified into typical Ménière’s disease (both cochlear and vestibular symptoms present) and atypical Ménière’s (only one group of symptoms present). The diagnosis is made on clinical and audiometric criteria, as described later.

The epidemiology of Ménière’s disease is difficult due to the diagnosis being commonly inaccurate and/or delayed. With a UK prevalence of 1 in 1000, the disease has a preponderance for the Caucasian population. Both sexes are equally affected, and peak onset is estimated to be in the fourth and fifth decade. In a retrospective review of 601 elderly patients with vertigo, dizziness and imbalance referred to tertiary neurotology clinics, Ménière’s disease was the fourth commonest cause affecting 12.5% of subjects.²

Aetiology

The exact aetiology of Ménière’s is not fully understood. The main histopathological finding is excess endolymphatic fluid in the inner ear (endolymphatic hydrops). This may be due to excess production or decreased drainage of endolymph, and causes increased inner ear pressure. Many possible causes for this have been proposed, and it is probable that several of these interact to cause the disease.

Anatomical abnormalities may impede the flow or drainage of endolymph. These may be congenital abnormalities (eg. malformation of the temporal bone, the endolymphatic sac and/or the endolymphatic duct) or acquired (eg. narrowing of the duct due to scar tissue).

A vascular component to the aetiology of Ménière’s is also probable; the disease has a well recognised association with migraine, suggesting a common pathogenesis. Some studies suggest that vascular compression of the
endolymphatic sac may occur, leading to obstruction and hydrops.³

Viral infection (with Herpes simplex, Epstein Barr virus or cytomegalovirus) and immunological factors have also been suggested in the pathogenesis of Ménière’s disease, although the evidence for these is mixed.⁴

A genetic predisposition to Ménière’s is well recognised and this may be due to several of the above factors.

Clinical features

The clinical features of Ménière’s disease are spontaneous vertigo, fluctuating hearing loss, a feeling of aural fullness, and tinnitus.

Vertigo is a sense of rotation when no motion is occurring, which may be confused with disequilibrium (a feeling of loss of stability during motion). In Ménière’s disease, episodes are at least 20 minutes in duration but may be up to several hours. The vertigo may be associated with nausea and vomiting. Horizontal or rotatory nystagmus will be present during the definitive episodes. There is no loss of consciousness but patients can experience sudden falls, which occur without warning. A sudden drop fall is termed as an otolithic crisis of Tumarkin.

Sensorineural (hearing loss due to deficit at the level of the inner ear) hearing loss must be confirmed audiometrically in the affected ear on at least one occasion. Hearing loss is primarily worse in the low frequencies. In some cases, this may prove to be irreversible.

Episodes of vertigo are often preceded by a feeling of pressure within the ear and/or tinnitus. Guidelines introduced by the American Academy of Otolaryngology-Head and Neck Surgery (AAO-NHS), in 1972 and reviewed in 1985 and 1995, are used to aid the diagnosis and evaluate therapy (Box 1).⁵

The natural course of Ménière’s disease tends to show an absence of signs and symptoms between attacks. Attacks occur with an average of five times per year at diagnosis, but generally reduce over time so that at 15 years there are fewer than two episodes per year.⁶ The disease usually presents unilaterally but becomes bilateral in 50% of cases at 30 years, with hearing loss being more constant and the patient’s main disability.⁷

Differential diagnosis

The diagnosis of Ménière’s disease is clinical, primarily from the history; however other important causes of vertigo, tinnitus and hearing loss must be excluded before the diagnosis can be made. Assessment should include a detailed history and otolaryngological examination, audiometry, and consideration of cranial MRI to exclude a tumour (especially where symptoms are unilateral).

When a patient presents with all symptoms of Ménière’s disease, diagnosis is straightforward. However patients can have difficulty describing their symptoms and may not be aware of their hearing loss when their overriding symptom is vertigo. In this case, it is necessary to consider other causes of vertigo.

The most common causes of
Vertigo. Central causes are rarer and include cerebellar and brainstem infarction, tumours and demyelination and are usually associated with other signs.

Rarely patients with anaemia, diabetes (both hypoglycaemia and hyperglycaemia), hypothyroidism, autoimmune diseases and syphilis have symptoms that are similar to those of Ménière’s disease.

**Management in the community**

Ménière’s disease needs a holistic approach to management. Despite over 80 years of research, no treatment has yet been proven effective in modifying the progressive course of the disease. A well recognised placebo effect with drugs for this disease and its relapsing-remitting nature make research difficult.

While several medical and surgical therapies exist, no single treatment is suitable for all patients. Often a combination of medical, psychological and lifestyle input is provided and treatment should be tailored, with patient input, to the severity and stage of their illness. There is much to be gained from patient education. A full explanation of the nature and course of the disease can be beneficial and is likely to aid later management.

The ultimate aims of treatment for Ménière’s disease are to alleviate vertigo, reduce tinnitus and conserve hearing. Treatment can be considered in terms of acute attacks, maintenance treatment and definitive ablation or surgery. For acute attacks, a vestibular sedative such as prochlorperazine is useful, but its long-term use should be avoided due to the risk of extrapyramidal symptoms.

For maintenance treatment, a 2005 survey of UK ENT surgeons found that 94% prescribed betahistine, 71% advised salt restriction, 63% gave diuretics, 52% would use endolymphatic sac decompression and 50% used grommet insertion. In the USA, salt restriction and diuretics are favoured in addition to intratympanic gentamicin and corticosteroid injection, now popular in Europe.

**Lifestyle modification**

Salt, caffeine, and alcohol are all recognised exacerbating factors in Ménière’s. While the reasons for this are unknown, a simple allergy may be implicated. Investigation for food allergy and avoidance of offending products should be undertaken, with salt intake being reduced to 1.5–2g per day.

**Betahistine**

Betahistine is safe and well-tolerated at 48mg per day. It acts, as an H1 agonist and H3 antagonist, to increase microcirculation to the stria vascularis. Documented side effects include gastrointestinal upset and headache, but these need not necessarily lead to cessation of treatment. A 2001 Cochrane review concluded that there is still insufficient
Evidence on whether betahistine is effective in Ménière’s disease.10

**Diuretics**

Drugs such as furosemide, amiloride and hydrochlorothiazide are used to counteract endolymphatic hydrops. The evidence here is weak and there is likely to be some placebo effect,11 but diuretics are generally safe, with appropriate monitoring, and are still widely used on a historical basis.

**Pressure pulse generator**

A newer treatment for non-responders is the Meniett device (Medtronic), a pulse generator that provides positive pressure in the ear canal and may prove an option for non-responding patients.12 Short-term use can reduce vertigo and tinnitus compared with placebo and can also improve hearing.13 A recent UK study found that the device was well tolerated, with 63% of patients noting improvement in vertigo and tinnitus.14 However other centres around the UK have not seen significant patient uptake. While long-term treatment costs with this device are close to surgical costs, its use in primary care might lead to savings in hospital care, surgical time and drug costs. Its non-destructive nature is of major clinical benefit to those for whom surgery would be the next option. Research into long-term efficacy and cost-effectiveness is ongoing.

**Secondary management**

With no pathognomonic test, diagnosis of Ménière’s disease is difficult and time consuming. Early attacks will need to be managed in primary care while waiting for referral and a definitive diagnosis. The NHS Clinical Knowledge Summary states that all patients with suspected Ménière’s disease need referral for audiology assessment, and confirmation of diagnosis requires referral to ENT,15 who will also be able to consider further management.

One such option for intractable vertigo is the use of transtympanic gentamicin injections. Several doses of gentamicin are injected into the tympanic membrane to irreversibly destroy the vestibular system. Evidence is good for its control of vertigo, but it is associated with a high rate of permanent sensorineural hearing loss, so great consideration of the prognosis of hearing function in the contralateral ear is essential. Research is ongoing into whether a partial ablation may result in a lower rate of deafness while still providing effective relief from vertigo.3

**Surgery for Ménière’s**

While the majority of patients with Ménière’s disease end up having a sustained period of remission, around a quarter experience persistent episodes, with quality of life affected to such an extent that surgery needs to be considered.16 This remains a debated subject and opinion often varies dependent on the individual surgeon’s area of expertise and threshold for surgical intervention. There are three main procedures.

Endolymphatic sac surgery is still viewed by many as the first-line surgery of choice and remains the most commonly performed operation when still trying to conserve hearing. In this procedure, the sigmoid sinus is decompressed and silastic material inserted into the sac and perisacular area. Studies have reported rates of elimination or improvement in vertigo between 70% and 90%.3 The procedure is safe in the elderly with low complication rates.17

Some may advocate vestibular nerve section, to disconnect the dysfunctional labyrinth while preserving hearing. The cure rate of vertigo has proved consistently high;16 however, this extensive operation carries the risks of any posterior cranial fossa surgery. Some may undertake labyrinthectomy, which is only appropriate for patients whose ipsilateral hearing is non-salvageable since total permanent deafness results. Again, careful consideration of long-term contralateral ear performance is essential.

There is a small group of patients whose Ménière’s disease is bilateral. If deafness becomes their primary problem, then cochlear implantation may be offered.

**Multidisciplinary involvement**

Poorly controlled Ménière’s disease can have a significant impact on a patient’s quality of life. Several different disciplines provide valuable input and their early involvement should be considered. “Vestibular rehabilitation”
can be very successful for patients with stable non-fluctuating vestibular loss; this comprises a series of physical exercises designed to work on central adaptation and compensatory mechanisms to prevent vertigo and falls. Intolerance to loud sounds can be helped by audiologists or hearing therapists, who can give advice on the use of a compression hearing aid. Hearing therapists also provide advice on managing tinnitus and coping with repeated attacks. Referral for counselling may be appropriate for patients whose disease is posing emotional strain. Providing education and aiding lifestyle modification can be of great benefit and improve subsequent treatment.37 Further sources of valuable information include The Ménière’s Society (www.menieres.org.uk)18 whose website offers patient-friendly information, self-management techniques and facilitates meeting other people with the disease.

Conclusions

Ménière’s disease remains a common disease, which is difficult to diagnose and has no cure. Many therapeutic options exist and a supportive, holistic approach that is tailored to an individual’s existing health and the impact on their quality of life is needed to manage the condition satisfactorily.

Conflict of interest: Drs Manjaly, Cleave, and Scott have no interests to declare. Dr Croxson has worked for companies that produce oral hypoglycaemic agents or insulins, but has not worked for any companies involved in Meniere’s disease.

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References