

## Insight into Meniere's disease diagnosis and treatment

- What is Meniere's disease?
- What are the causes?
- How is it treated?
- And more...

### What is Meniere's disease?

Meniere's disease describes a set of episodic symptoms including vertigo (attacks of a spinning sensation), hearing loss, tinnitus (a roaring, buzzing, or ringing sound in the ear), and a sensation of fullness in the affected ear. Episodes typically last from 20 minutes up to 4 hours. Hearing loss is often intermittent, occurring mainly at the time of the attacks of vertigo. Loud sounds may seem distorted and cause discomfort. Usually, the hearing loss involves mainly the lower pitches, but over time this often affects tones of all pitches. After months or years of the disease, hearing loss often becomes permanent. Tinnitus and fullness of the ear may come and go with changes in hearing, occur during or just before attacks, or be constant.

Meniere's disease is also called idiopathic endolymphatic hydrops and is one of the most common causes of dizziness originating in the inner ear. In most cases only one ear is involved, but both ears may be affected in about 15 percent of patients. Meniere's disease typically starts between the ages of 20 and 50 years. Men and women are affected in equal numbers. Because Meniere's disease affects each person differently, your doctor will suggest strategies to help reduce your symptoms and will help you choose the treatment that is best for you.

### What are the causes?

Although the cause is unknown, Meniere's disease probably results from an abnormality in the volume of fluid in the inner ear. Too much fluid may accumulate either due to excess production or inadequate absorption. In some individuals, especially those with involvement of both ears, allergies or autoimmune disorders may play a role in producing Meniere's disease. In some cases, other conditions may cause symptoms similar to those of Meniere's disease.

People with Meniere's disease have a "sick" inner ear and are more sensitive to factors, such as fatigue and stress that may influence the frequency of attacks.

### How is a diagnosis made?

Your physician will take a history of the frequency, duration, severity, and character of your attacks, the duration of hearing loss or whether it has been changing, and whether you have had tinnitus or fullness in either or both ears. When the history has been completed, diagnostic tests will check your hearing and balance functions. They may include:

For hearing

- An audiometric examination (hearing test) typically indicates a sensory type of hearing loss in the affected ear. Speech discrimination (the patient's ability to distinguish between words like "sit" and "fit") is often diminished in the affected ear.

For balance

- An ENG (electronystagmogram) may be performed to evaluate balance function. In a darkened room, eye movements are recorded as warm and cool water or air are gently introduced into each ear canal. Since the eyes and ears work in coordination through the nervous system, measurement of eye movements can be used to test the balance system. In about 50 percent of patients, the balance function is reduced in the affected ear.
- Rotational or balance platform testing, may also be performed to evaluate the balance system.

Other tests

- Electrocochleography (ECoG) may indicate increased inner ear fluid pressure in some cases of Meniere's disease.
- The auditory brain stem response (ABR), a computerized test of the hearing nerves and brain pathways, computed tomography (CT), or magnetic resonance imaging (MRI) may be needed to rule out a tumor occurring on the hearing and balance nerve. Such tumors are rare, but they can cause symptoms similar to Meniere's disease.

### **What should I do during an attack of Meniere's disease?**

Lie flat and still and focus on an unmoving object. Often people fall asleep while lying down and feel better when they awaken.

### **How can I reduce the frequency of Meniere's disease episodes?**

Avoid stress and excess salt ingestion, caffeine, smoking, and alcohol. Get regular sleep and eat properly. Remain physically active, but avoid excessive fatigue. Consult your otolaryngologist about other treatment options.

How is Meniere's disease treated?

Although there is no cure for Meniere's disease, the attacks of vertigo can be controlled in nearly all cases. Treatment may include:

- A low salt diet and a diuretic (water pill)
- Anti-vertigo medications
- Intratympanic injection with either gentamicin or dexamethasone.
- An air pressure pulse generator
- Surgery

Your otolaryngologist will help you choose the treatment that is best for you, as each has advantages and drawbacks. In many people, careful control of salt in the diet and the use of diuretics can control symptoms satisfactorily.

Intratympanic injections involve injecting medication through the eardrum into the middle ear space where the ear bones reside. This treatment is done in the otolaryngologist's office. The treatment includes either making a temporary opening in the eardrum or placing a tube in the eardrum. The drug may be administered once or several times. Medication injected may include gentamicin or corticosteroids. Gentamicin alleviates dizziness but also carries the possibility of increased hearing loss in the treated ear that may occur in some individuals. Corticosteroids do not cause worsening of hearing loss, but are less effective in alleviating the major dizzy spells.

An air pressure pulse generator is another option. This device is a mechanical pump that is applied to the person's ear canal for five minutes three times a day. A ventilating tube must be first inserted through the eardrum to allow the pressure produced by the air pressure pulse generator to be transmitted across the round

window membrane and change the pressure in the inner ear. The success rate of this device has been variable.

### **When is surgery recommended?**

Surgery is needed in only a small minority of patients with Meniere's disease. If vertigo attacks are not controlled by conservative measures and are disabling, one of the following surgical procedures might be recommended:

- Endolymphatic sac shunt or decompression procedure relieves attacks of vertigo in one-half to two-thirds of cases and the sensation of ear fullness is often improved. Control is often temporary. Endolymphatic sac surgery does not improve hearing, but only has a small risk of worsening it. Recovery time after this procedure is short compared to the other procedures.
- Selective vestibular neurectomy is a procedure in which the balance nerve is cut as it leaves the inner ear and goes to the brain. While vertigo attacks are permanently cured in a high percentage of cases, patients may continue to experience imbalance. Similar to endolymphatic sac procedures, hearing function is usually preserved.
- Labryrinthectomy and eighth nerve section are procedures in which the balance and hearing mechanism in the inner ear are destroyed on one side. This is considered when the patient with Meniere's disease has poor hearing in the affected ear. Labryrinthectomy and eighth nerve section result in the highest rates for control of vertigo attacks.

