

## **MÉNIÈRE'S DISEASE**

### **Overview**

Ménière's disease is a syndrome in which you experience episodes of spinning vertigo (sense of room spinning), hearing loss, tinnitus (ringing in the ear), and fullness or pressure in the ear or ears. Between the unpredictable attacks, you usually do not have any problems or symptoms of the disease. The syndrome is most likely related to a fluid imbalance in the inner ear, or problems with salt-water homeostasis (body fluid equilibrium).

The diagnosis of the disease is usually based on a careful history and physical examination by an ear specialist, but other tests may be needed for a definitive diagnosis and to plan treatment options.

Ménière's disease affects people of all ages, genders, and races. It is most common in middle age and older, uncommon in children.

### **Causes**

The inner ears of patients with Ménière's disease show dilation of one of the two fluid spaces in the inner ear; however, the cause of this fluid balance is unknown. Previous ear injury, heredity, autoimmunity, and allergy have all been suggested but not definitively proven as the underlying cause. It may actually be a different source in different people that manifests as the same set of symptoms.

### **Symptoms**

Warning symptoms such as fullness or pressure in one ear may come before an acute episode, or attacks may occur spontaneously.

- Common symptoms:
  - Fluctuating hearing loss with distortion of sounds and difficulty with understanding speech
  - Ringing in the affected ear (tinnitus)
  - A sense of room spinning (vertigo)
  - A cold sweat, nausea, and vomiting, or generalized weakness during the attack
- The episodes usually last from one to a few hours, depending on the severity of the disease
- Recurrence of the attacks is a cardinal feature of Ménière's disease. Attacks often come in clusters with long periods in between. The timing and interval between attacks is unpredictable
- Early in the disease, the symptoms usually go away in several hours, but hearing loss may take a day or more to return to normal. Hearing loss can become permanent and may lead to intolerance of any loud noises

### **Treatment**

#### **Self-Care at Home**

The best way to manage an attack at home is to minimize the symptoms

- Lie in a dark room with your eyes closed
- Try medications prescribed by your doctor- medications used to help treat anxiety (Valium, Ativan) and/or motion sickness (Antivert) can be used to help shorten and decrease the severity of the symptoms
- If any of these measures do not help during an attack, seek further medical evaluation for additional testing and treatment options and rule out any additional potential diseases

#### **Medical Prevention**

No measures will completely prevent Ménière's disease, but you can take measures to avoid or minimize attacks and consequences:

- Low-salt diet- less than 2 grams of sodium daily. Avoid canned foods, smoked meats and fish, pizza, etc
- The following should also be avoided or cautiously consumed, monitoring for increased symptoms:
  - Caffeine
  - Tobacco
  - Nicotine
  - Foods high in cholesterol or triglycerides
  - Foods with high carbohydrates
  - Excessive sweets and candy
  - Chocolate
  - Alcohol, particularly red wine and beer
- Avoid exposure to loud noises
- Manage stress as much as possible (can be a trigger)
- Use caution at home and on the job to avoid falls if you should feel dizzy
- Use of blood pressure medications can affect disease

## **Meniett Device**

This device is a small, portable pump which delivers pulses to the ear via a plastic probe placed in the ear canal. The principle of this method is to restore the fluid balance in the inner ear by applying low-pressure pulses to the middle ear. It requires placement of an ear tube in the ear drum to allow the pulses to reach the inner ear, which can be done in the office. Treatments are self-administered typically three times per day for five minutes each time.

## **Medications**

Medications to treat acute attacks discussed above.

### Steroids

In addition, corticosteroids are used to treat acute attacks either in oral form (often Medrol dose pack) or by direct infusion into the middle ear space via intratympanic (injections through the ear drum). Steroids decrease inflammation in the inner ear that occurs during an attack or flare-up and can often decrease duration and severity of symptoms. Some people are treated with steroids alone a few times per year as symptoms develop.

### Medications for prevention of attacks:

- Diuretic (Dyazide, Maxide, Spironolactone, Lasix) to assist with salt-wasting and fluid imbalance- may decrease potassium levels, stop if muscle cramps develop. Must check labs every 6-12 months.
- Betahistine (SERC)- works as an antihistamine in the inner ear. It may upset stomach by increasing acid production; avoid if severe acid reflux or history of ulcers
- Calcium-Channel Blocker (CCB; Verapamil)- may stop blood vessel spasm to the inner ear; may be taken in conjunction with additional blood pressure medications but will need to monitor for low blood pressure and/or lightheadedness

## **Surgery**

Most people respond (>90%) to medical management to some degree, but some may need surgical treatment to correct potential problems in the inner ear. Two distinct approaches exist in surgical management- one is directed toward improving the pressure status of the middle ear, while the other is aimed at preventing the abnormal signals from reaching the brain by destroying the balance system in the affected ear, thus eliminating symptoms. The destructive approach is left for end-stage patients who are debilitated by symptoms and often have no remaining hearing in the ear.

### Endolymphatic sac decompression

This procedure decreases pressure buildup of the endolymph (inner ear fluid) by removing a portion of the bone that encases the fluid reservoir. This allows the reservoir sac to expand more freely than before and allows the pressure to dissipate. The procedure has a relatively low risk but does carry a small risk of permanent hearing loss. It is not successful in every patient- about 2/3rds of patients are helped at least in the short-term by this procedure. It does not prevent the need for future procedures having to be performed at a later date.

### Chemical labyrinthectomy

Medication (gentamicin) is injected into the middle ear through the eardrum that selectively destroys the balance portion of the inner ear. It may require a series of injections but often improves symptoms after one injection. Although not as certain as a surgical labyrinthectomy, this can be done in an outpatient setting and avoids a general anesthetic. Hearing loss is a risk factor but does not happen in every case. You can expect to have more imbalance after this procedure and exercises may be required to assist the other (good) ear balance system to compensate for the loss in the bad ear after this procedure.

### Surgical labyrinthectomy

This surgical procedure is performed under general anesthesia to remove the entire hearing and balance organ on the affected ear. This is the best, most definitive procedure for vertigo attacks but the hearing is completely lost as part of the procedure. This procedure permanently destroys the balance and hearing functions of the inner ear, thus eliminating vertigo attacks. Therefore, this is reserved most often for those without useful hearing in the affected ear. The unoperated ear will provide hearing and balance as long as not affected by disease or other conditions. A hospital stay is required, and you may feel increased imbalance after surgery which can require balance exercises or therapy.

### Vestibular Nerve Section

The goal with this surgical procedure is to cut the balance nerve on the affected side while the hearing nerve is preserved for patients with debilitating vertigo not responsive to prior therapy, in whom useful hearing still remains. This procedure requires a craniotomy, or removal of part of the skull similar to a brain surgery to access the nerve.