

Meniere's Disease

Meniere's disease is an abnormality of the inner ear causing a host of symptoms, including vertigo or severe dizziness, tinnitus or a roaring sound in the ears, fluctuating hearing loss, and the sensation of pressure or pain in the affected ear. The disorder usually affects only one ear and is a common cause of hearing loss. Named after French physician Prosper Ménière who first described the syndrome in 1861, Meniere's disease is now also referred to as endolymphatic hydrops.

What causes Meniere's disease?

The symptoms of Meniere's disease are associated with a change in fluid volume within a portion of the inner ear known as the labyrinth. The labyrinth has two parts: the bony labyrinth and the membranous labyrinth. The membranous labyrinth, which is encased by bone, is necessary for hearing and balance and is filled with a fluid called endolymph. When your head moves, endolymph moves, causing nerve receptors in the membranous labyrinth to send signals to the brain about the body's motion. An increase in endolymph, however, can cause the membranous labyrinth to balloon or dilate, a condition known as endolymphatic hydrops.

Many experts on Meniere's disease think that a rupture of the membranous labyrinth allows the endolymph to mix with perilymph, another inner ear fluid that occupies the space between the membranous labyrinth and the bony inner ear. This mixing, scientists believe, can cause the symptoms of Meniere's disease. Scientists are investigating several possible causes of the disease, including environmental factors, such as noise pollution and viral infections, as well as biological factors.

What are the symptoms of Meniere's disease?

The symptoms of Meniere's disease occur suddenly and can arise daily or as infrequently as once a year. Vertigo, often the most debilitating symptom of Meniere's disease, forces the sufferer to lie down. Vertigo attacks can lead to severe nausea, vomiting, and sweating and often come with little or no warning.

Some individuals with Meniere's disease have attacks that start with tinnitus, a loss of hearing, or a full feeling or pressure in the affected ear. It

is important to remember that all of these symptoms are unpredictable. Typically, the attack is characterized by a combination of vertigo, tinnitus and hearing loss lasting several hours. But people experience these discomforts at varying frequencies, durations, and intensities. Some may feel slight vertigo a few times a year. Others may be occasionally disturbed by intense, uncontrollable tinnitus while sleeping. And other Meniere's disease sufferers may notice a hearing loss and feel unsteady all day long for prolonged periods. Other occasional symptoms of Meniere's disease include headaches, abdominal discomfort and diarrhea. A person's hearing tends to recover between attacks but over time becomes worse.

How is Meniere's disease treated?

There is no cure for Meniere's disease. Medical and behavioral therapy, however, are often helpful in managing its symptoms. Although many operations have been developed to reverse the disease process, their value has been difficult to establish. And, unfortunately, all operations on the ear carry a risk of hearing loss.

The most commonly performed surgical treatment for Meniere's disease is the insertion of a shunt, a tiny silicone tube that is positioned in the inner ear to drain off excess fluid.

In another more reliable operation, a vestibular neurectomy, the vestibular nerve which serves balance is severed so that it no longer sends distorted messages to the brain. But the balance nerve is very close to the hearing and facial nerves. Thus, the risk of affecting a patient's hearing or facial muscle control increases with this type of surgical treatment. Also, older patients often have difficulty recovering from this type of surgery.

A labyrinthectomy, the removal of the membranous labyrinth, is an irreversible procedure that is often successful in eliminating the dizziness associated with Meniere's disease. This procedure, however, results in a total loss of hearing in the operated ear—an important consideration since the second ear may one day be affected. Also, labyrinthectomies themselves may result in other balance problems.

Some physicians recommend a change of diet to help control Meniere's symptoms. Eliminating caffeine, alcohol and salt may relieve the

frequency and intensity of attacks in some people. Eliminating tobacco use and reducing stress levels may lessen the severity of the symptoms. And medications that either control allergies, reduce fluid retention or improve blood circulation in the inner ear may also help.

How is Meniere's disease diagnosed?

Scientists estimate that there are 3 to 5 million people in the United States with Meniere's disease, with nearly 100,000 new cases diagnosed each year. Proper diagnosis of Meniere's disease entails several procedures, including a medical-history interview and a physical examination by a physician; hearing and balance tests; and medical imaging with magnetic resonance imaging (MRI). Accurate measurement and characterization of hearing loss are of critical importance in the diagnosis of Meniere's disease.

Through the use of several types of hearing tests, physicians can characterize hearing loss as being sensory, arising from the inner ear, or neural, arising from the hearing nerve. An auditory brain stem response, which measures electrical activity in the hearing nerve and brain stem, is useful in differentiating between these two types of hearing loss. And under certain circumstances, electrocochleography, recording the electrical activity of the inner ear in response to sound, helps confirm the diagnosis.

To test the vestibular or balance system, physicians irrigate the ears with warm and cool water. This flooding of the ears, known as caloric testing, results in nystagmus, rapid eye movements that can help a physician analyze a balance disorder. And because tumor growth can produce symptoms similar to Meniere's disease, magnetic resonance imaging is a useful test to determine whether a tumor is causing the patients vertigo and hearing loss.

Additional Information

- Vestibular Disorders Association - www.vestibular.org
- The Ménière's Page, The Department of Otolaryngology, Washington University School of Medicine - <http://oto.wustl.edu/men/>

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