

## Treating Ménière's Disease

John Coughlin

Department of Electrical and Computer  
Engineering, URI  
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Ménière's Disease is a complex, progressive disorder of the inner ear. Approximately 2.6 million people in the US and Europe suffer from this malady. Despite the fact that 40,000 new cases are diagnosed each year, it is difficult to identify and treat. It can affect any ethnicity or age group. Characterized by the feeling of dizziness or rotational vertigo, it is associated with hearing loss, pressure, and tinnitus. Headache, nausea, and vomiting can accompany the vertigo, sometimes classified as BPPV (benign paroxysmal positional vertigo.) The symptoms vary and vertigo spells are often intermittent and unpredictable.

The cause of Ménière's Disease is nearly always idiopathic. However, recent research suggests that the primary problem is in the endolymphatic sac, an organ in the inner ear, which maintains the level of endolymph in the hearing and balance canals of the inner ear. A viral infection of the sac may trigger the onset of Ménière's Disease. Endocrine problems and a sodium-rich diet could also be risk factors.

The diagnostic methods and treatment options are diverse and vary in severity. About 70% of patients gradually improve and their vertigo spells decrease over time, with or without medical intervention. The remainder is left with no choice but to live with the disease and try to alleviate the symptoms.

Symptom management through medical therapy is based upon decreasing the amount of endolymphatic fluid in the ear canals. This form of treatment includes a low-sodium diet, diuretic

therapy, stress management, and avoidance of caffeine, tobacco and alcohol. Medical treatment also may include other drugs, such as steroids, anti-depressants, antihistamines, anti-vertigo and vasoactive drugs.

Surgical treatment is the most drastic measure. Endolymphatic sac surgery is a non-destructive, surgical manipulation of the endolymphatic sac aimed at increasing fluid drainage from the inner ear. Another method is vestibular nerve sectioning. This surgical technique decreases vestibular function to control symptoms of vertigo, either by denervation or destruction of the affected ear. In cases where hearing can be sacrificed or is already lost, Surgical or chemical labyrinthectomy removes the labyrinth by surgery or by introducing gentamicin. These procedures have a 95% success rate in eliminating major vertigo attacks but they often destroy the hearing and balance of the affected ear.

A Low-Pressure Pulse Generator delivers specific wave forms of energy to the middle ear, and subsequently, the inner ear fluids, to cause relief of endolymphatic hydrops and the symptoms of Ménière's Disease. The device delivers a computer-controlled, complex algorithm of low pressure pulses that are transmitted to the middle ear space and act on the round window membrane. It is believed that the energy of the pressure pulses causes a displacement of the perilymphatic fluid, which stimulates the flow of endolymphatic fluid and results in a reduction of this fluid. The maximum pressure being transmitted to the ear is 12 mbar. This pressure level is the equivalent to what you would be exposed to when swimming and putting your head 5 inches below the surface of the water.