

YOUR HEALTH

Meniere's disease: Not just vertigo but also deafness

BY CATHERINE RAJCAN

Meniere's disease is perhaps not well known among people in the general public. This disease, medically referred to as endolymphatic hydrops, most often manifests itself by way of severe vertigo or dizziness accompanied by nausea, vomiting, and sweating. According to PubMed Health, the National Institutes of Health online resource, additional symptoms include hearing loss accompanying the episodes, progressively getting worse over time, as well as diarrhea, headaches, abdominal pain/discomfort, and uncontrolled eye movements. (PubMed) Individuals suffering from MD often experience ringing in the ear, or tinnitus, and an abnormal sense of pressure in the ear, and nystagmus is often clinically observed during the attacks of vertigo.

One of the ailments described within *Otolaryngology: Head & Neck Surgery* under the classification Peripheral Vestibular Disorders is Meniere's disease; the larger category is described as affecting 1 in 13 people in their lifetime. (Crane) The National Institutes of Health estimates that between 50,000 and 100,000 people develop Meniere's annually (PubMed) — slightly more often in women than men (Huppert). However, the cause of the disease remains unknown. Meniere's is distinguished from occasional transient episodes of dizziness by the fact that in cases of MD, the vertigo episodes last up to 24 hours.

People who suffer from Meniere's experience an interference with the vestibular apparatus of the inner ear. The vestibular system controls static equilibrium, in other words, our sense of balance when the body is stationary but the position of the head may be moving. The mechanisms of the static equilibrium include the maculae — hair cell receptors — located within the vestibule in the inner ear, and the

otoliths — small calcium stones suspended in the gelatinous otolithic membrane. This system then transmits signals along the vestibular nerve to the cranial nerve VIII. (Marieb)

According to NIH, the onset of MD may be due to head injury, middle ear infection, or syphilis; and several risk factors include: allergies, alcohol use, fatigue, recent viral illness, respiratory infection, smoking, stress, and use of certain medications, e.g., aspirin. However, because the etiology of the disease is unknown and it may appear spontaneously in individuals without the above-mentioned risk factors or precipitating causes, a diagnosis may initially be elusive.

In an effort to mitigate episodes, patients are advised to reduce water intake and avoid salt; avoid sudden movements, bright lights, television, and reading during attacks; eat a well-balanced diet; limit caffeine and alcohol intake; get adequate sleep; exercise regularly; and practice relaxation techniques.

Tests that have been traditionally utilized in diagnosing the patient's condition are electronystagmography, head CT scan, or MRI scan, and audiological and audiometric technology. A study conducted by the Department of Surgery/Otolaryngology at the University of Sydney, Sydney, Australia, in 2010 compared three audiometric testing methods of transtympanic electrocochleography to diagnose Meniere's disease: 1, click summing potential measurements; 2, tone burst summing potential amplitude measurements; and 3, biasing of the summing potential using a low frequency tone. (Isela) Biomechanically sound waves are transmitted along a pathway of the eardrum, ossicles, oval window, and perilymph fluid, to the basilar membrane. The University of Sydney article bears out the presence of basilar membrane displacement in hydrops (Meniere's); a statistically reduced amount of "modulation in Meniere's ears compared with normal ears"; and finds that the stimulus bias ratio measures are the most sensitive diagnostic indicator of a patient having Meniere's disease. The highest degree of diagnostic certainty was achieved by combining and comparing the results achieved from the stimulus bias ratio measurement along with those of the tone burst amplitude measurement.

Identifying a more accurate diagnostic

tool should provide medical practitioners the opportunity to home in on the cause of the disease and possibly, in the near future, to develop a cure or at least successful palliative therapy. Until a cure is identified, the anecdotal treatments mentioned above continue to be recommended to individuals suspected as suffering from Meniere's disease. More extreme attempts to resolve severe cases of vertigo related to Meniere's include cutting the vestibular nerve — which does not damage hearing; direct application of the antibiotic gentamicin into the middle ear; and performing a surgical labyrinthectomy — which will result in hearing loss in the operated ear. In light of the disease being of biomechanical origin, it does not automatically follow that the contralateral ear will be affected.

Because the episodes of vertigo with MD can be extreme, patients are advised not to operate heavy machinery nor drive a car during an episode. While some people experience sudden onset of the symptom of dizziness, others recognize early indications prior to the episodes manifesting and can thus remove themselves from conditions that may exacerbate the condition. Individuals who are unable to anticipate the onset of an "attack" are expected to self-initiate forfeiture of their driver's licenses.

The disease has a pattern of remaining chronic for a term oftentimes up to 10 to 20 years, with the symptom of vertigo being a primary cause of anxiety and negatively affecting quality of life. However, while the frequency of attacks improved (lessened) or even disappeared in the vast majority of Meniere-diagnosed patients followed over a 15-20 year period in studies concluded between 1991 and 2008, the severity and duration of the attacks increased among the patients during this time period. (Huppert)

In "Long-term course of Meniere's disease revisited," the authors note that hearing loss increases over the course of the disease, with the greatest degree of loss occurring within the first five to ten years (56 percent of patients) and moderating thereafter. The authors identify "drop attacks," that is, sudden falling spells, being experienced by some individuals separate and apart from vertigo and other common symptoms listed at the beginning of this article. The drop attacks are believed to

result from a change in pressure gradients on the otolithic membranes, but they tend to vanish from the constellation for most patients over the course of the disease. (Huppert)

Despite the more accurate diagnostic tool referenced above in the Isela article, Huppert, Strupp, and Brandt note there exists no "'gold standard' for diagnosing the disease in its early stage."

As the disease progresses and takes hold, with or without a specific diagnosis, individuals afflicted with the condition experience a psychological impact as they tend to withdraw from social engagements, may become disabled for employment purposes, and are limited in their ability to utilize transportation opportunities. The resulting isolation and absence of a positive prognosis with Meniere's have been found to produce symptoms consistent with the conditions of post-traumatic stress disorder and health anxiety. (Kirby)

The importance of providing psychological treatment to individuals suffering from MD is emphasized in "Understanding psychological distress in Meniere's disease: a systematic review," as clinical evidence has emerged that these patients exhibit "worry about [their] illness, concern about pain and bodily preoccupation" regarding their medical conditions. The authors assert that because Meniere's "is a chronic, intermittent condition with high levels of uncertainty and no clear cause, sufferers may be at risk of developing health anxiety." People suffering from this disease have been shown to possess seven of the 13 components of PTSD, including "'distress/impairment in social, occupational or other areas of functioning,' 'arousal causing sleeping problems,' 'arousal causing irritability,' 'reduced interest/participation in activities,' and 'restricted range of affect.'" (Kirby)

Having spoken with several persons who are hard of hearing, some of whom have been diagnosed with Meniere's, I have heard individuals among this population express gratitude for their feelings being validated by others diagnosed with the condition as well as the suggestions and tips they have received from their peers that have improved their lives.

offered it here as a way to further educate her colleagues on this disease

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