Meniere's Disease

Meniere's disease, also known as endolymphatic hydrops, is a disorder of the inner ear caused by abnormal fluid dynamics. It typically affects one ear but can involve both in about 20% of cases. Although the exact cause is unknown, the condition is believed to result from an imbalance in inner ear fluids.

Symptoms

Patients with endolymphatic hydrops may experience a combination of the following symptoms:

- **Vertigo**: The most debilitating symptom, often presenting as sudden spinning attacks that can last minutes to hours, sometimes causing nausea or vomiting. After an episode, patients may feel drowsy or off-balance for days.
- **Hearing loss**: Intermittent at first, particularly in low frequencies, but eventually leading to a fixed loss across all tones. Loud sounds may become uncomfortable or distorted.
- **Tinnitus**: A ringing or hissing sound in the ear, often low-pitched, that fluctuates with changes in fluid pressure.
- **Ear fullness**: A sensation of pressure in the ear that cannot be relieved by popping.

These symptoms can range from a minor nuisance to severely disabling, especially when vertigo attacks are frequent and unpredictable. When all symptoms are present, the condition is termed Meniere's disease, named after Prosper Meniere, who first described the syndrome in 1856.

Diagnosis

Diagnosis is based on a combination of clinical history, symptoms (such as ear fullness, fluctuating hearing loss, vertigo, and roaring tinnitus), and diagnostic tests. These may include:

- **Hearing tests** (serial audiometry) to detect fluctuating hearing loss and reduced speech discrimination.
- **Imaging**: CT or MRI may be used to rule out other causes of symptoms.
- **Electrocochleography (ECoG)** to assess fluid pressure in the inner ear.
- **Electronystagmography (ENG)** and **vestibular evoked myogenic potentials (VEMP)** to evaluate balance function.

Treatment

Since the cause of Meniere's disease is unknown, treatments focus on symptom management. Approaches include:

- **Dietary and medication changes**: A low-salt diet and diuretics can reduce fluid buildup. Salt intake should be limited to 1,500 mg/day.
- **Balance medications**: Drugs like meclizine or diazepam may help control vertigo but are not recommended for long-term use.
- **Steroid therapy**: Fludrocortisone, a mineralocorticoid, may help control symptoms without the long-term side effects associated with glucocorticoids.
- **Migraine management**: Since many Meniere's patients also suffer from migraines, effective migraine treatment may improve symptoms.

Advanced Treatments

For patients who don't respond to lifestyle changes or medications, more invasive treatments may be considered:

- **Steroid perfusion**: Steroids (e.g., dexamethasone) can be injected directly into the middle ear to reduce inner ear inflammation.
- **Gentamicin perfusion**: This antibiotic is injected to selectively weaken balance function without affecting hearing.
- **Surgery**: In severe cases, procedures like endolymphatic sac decompression or vestibular neurectomy may be performed to relieve vertigo. These surgeries aim to reduce pressure or sever the balance nerve, offering vertigo relief but preserving hearing as much as possible.

Surgery Options

1. **Endolymphatic sac decompression**: Reduces inner ear pressure to control vertigo.
2. **Endolymphatic duct occlusion**: A more aggressive version of decompression, offering a higher rate of vertigo control.
3. **Vestibular neurectomy**: Severs the balance nerve, curing vertigo while preserving hearing.
4. **Labyrinthectomy**: For patients with no remaining hearing, this procedure removes the inner ear to eliminate vertigo.

Conclusion

Meniere's disease is a complex condition requiring a tailored approach to diagnosis and treatment. While there is no cure, modern therapies can significantly improve quality of life by reducing the frequency and severity of symptoms.