



TO STUDY MÉNIÈRE'S DISEASE DAILY LIFE AND FIRST-LINE TREATMENT AND DIET MODIFICATION

Chandra Sekhar G¹, Dr. Suresh Kumar Chodavarapu ^{2*}

¹Associate Professor of Psychiatry, Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry, (Affiliated to Bharath University, Chennai), India.

²Associate Professor of Anesthesiology, Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry, (Affiliated to Bharath University, Chennai), India.

ABSTRACT

An idiopathic inner ear ailment called Meniere's disease (MD) is characterised by tinnitus, fluctuating sensorineural hearing loss (SNHL), auditory fullness, and spontaneous recurrent vertigo. The pathophysiological processes that underlie the characteristic symptoms of MD are now thought to be caused by endolymphatic hydrops (EH) of the inner ear. The Barany Society's criteria serve as the foundation for MD diagnosis. Although there are several therapy alternatives for MD, the scientific community does not deem any of them to be successful. The first-line therapy frequently include dietary changes, such as a low salt diet and a decrease in daily alcohol and caffeine use. There is now no universal agreement on the utility of these dietary limitations, despite some studies showing a good impact, even in the prevention of recurrences.

Key words: Hearing loss, caffeine, vertigo, Ménière's disease.

INTRODUCTION

A persistent inner ear disorder called Ménière's causes occasional occurrences of vertigo, sensorineural hearing loss, auditory fullness, and tinnitus. The name "Ménière's disease" refers to an idiopathic disorder, whereas "Ménière's syndrome" refers to a clinically similar presentation that can develop as a result of other diseases, including as infections, genetic abnormalities, or trauma.

Prosper Ménière, who observed in 1861 that dizziness, vertigo, and hearing loss were all connected to an inner ear injury, is honoured by the disease's name. Due to the gradual and progressive nature of the disease's typical course, many patients arrive at primary healthcare facilities after their scheduled time. Additionally, because of the disorder's course, the affected people's social functioning is significantly impacted. [1]

Meniere will impact between 50 to 200 persons out of every 100,000, with the majority of cases falling between the ages of 40 and 60. The relationship between

these symptoms must be kept in mind by family doctors if they are to correctly diagnose and treat this condition. In this essay, we'll Prosper Ménière, who reviewed the pathogenesis, clinical characteristics, evaluation, and therapy of this condition based on recent investigations, is named after the disorder. [2]

However, there hasn't been a widely agreed idea on the specific pathophysiology up to this point. Some temporal bone tests in Meniere patients showed endolymphatic buildup in the cochlea and the vestibular organ. Endolymphatic hydrops is typically ascribed to an increase in endolymph production or a reduction in the inner ear's absorption processes. Due to the increasing endolymphatic volume, this will cause the endolymphatic space to distend. [3] Reissner's rupture, which would result in the leakage of the (toxic) potassium-rich endolymph into the vestibulocochlear nerve and auditory hair cells, is one of the effects of this. [4]

Corresponding Author: - **Dr. Suresh Kumar Chodavarapu** Email: drpebyreddy@gmail.com

As a result, a link between endolymphatic hydrops and hearing loss (more than 40 dB) associated with Meniere illnesses has been demonstrated. [5] Endolymphatic hydrops is not totally specific for all Meniere illness symptoms because of the relationship with vertigo, which has been questioned.

Meniere illness is mostly diagnosed clinically, and two commonly accepted criteria are the Barany Society criteria from 2015 and the American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) criteria from 1995. A possible Meniere's patient can be distinguished from a patient with definite Meniere's using the Barany society diagnostic criteria. The presence of two or more spontaneous bouts of vertigo, each lasting 20 minutes to 12 hours, and fluctuating aural symptoms (such as tinnitus, hearing loss, and fullness) in the afflicted ear are required for a diagnosis of Meniere's disease, according to this criteria. [6] The doctor cannot explain the symptoms, and there is a recorded low- (or medium-) frequency sensorineural hearing loss in the afflicted ear at least once in association to episodes of vertigo and with any other vestibular diseases.

Caffeine and alcohol both have the potential to cause vasoconstriction and a decrease in blood flow. The inner ear, which can exacerbate patients' symptoms. [7] The most popular psychoactive drug used worldwide is caffeine, which is present in a wide range of goods including coffee, tea, chocolate, soft drinks, mate, guarana powder, diuretics, stimulants, analgesics, and anti-allergic medications. [8] A member of the class of methylxanthines, caffeine (1, 3, 7-trimethylxanthine) is a stimulant of the central nervous system. Even at physiological levels, caffeine is a proven ergogenic aid that improves focus and alertness while decreasing weariness. People who are used to the benefits of caffeine may have withdrawal symptoms when their intake is reduced, which can include symptoms like headaches and mood swings. the aim of the study is Restriction of salt, caffeine and alcohol intake for the treatment of Ménière's disease

METHODS

Randomised and quasi-randomised controlled trials are examples of studies. If found, we intended to include cross-over and cluster-randomized trials. Participants' characteristics Patients who have been diagnosed with Ménière's illness or syndrome and are over the age of 18. We intended to categorise research based on the diagnostic criteria used to identify Ménière's illness or syndrome, ranking those utilising the AAO-HNS criteria, or similar, to define probable, definite, or certain Ménière's as grade 'I' studies, and the rest studies as grade 'II'.

Types of interventions

The intervention of interest was dietary modification: specifically, Salt, caffeine and/or alcohol restriction or substitution (or both).

The control intervention was no modification.

The main comparison pairs were:

- Dietary restriction of salt *versus* no restriction;
- Dietary restriction of caffeine *versus* no restriction;
- Dietary restriction of alcohol *versus* no restriction.

Other possible comparison pairs included:

- Dietary restriction of salt *versus* dietary restriction of caffeine;
- Dietary restriction of salt *versus* dietary restriction of alcohol;
- Dietary restriction of alcohol *versus* dietary restriction of caffeine;
- Dietary restriction of salt + caffeine *versus* no restriction;
- Dietary restriction of salt + alcohol *versus* no restriction;
- Dietary restriction of alcohol + caffeine *versus* no restriction.

Multiple dietary restrictions were utilised in combination in trials that we intended to include, but we also planned to reflect this in the analysis. Although we prepared for variation in the extent and length of dietary alteration, we intended to address this in subgroup analysis. Due to the possibility of interacting effects, we omitted trials where dietary modification was used in conjunction with another kind of treatment (such as a pharmaceutical medication).

RESULTS AND DISCUSSION

It has previously been researched how well caffeine consumption is reduced in cases of vertigo. Patients got this orientation with the understanding that pharmacological therapy would only be utilised if symptoms persisted 4 weeks following the start of restriction. Only 16% of individuals said their symptoms had improved during the time when the focus was only on nutrition. [9] 5% of patients with Type 1 diabetes mellitus had vestibular abnormalities, according to research on vestibulocochlear results in this population. Caffeine addiction was the most common complaint and unhealthy eating behaviour, reported by 35% of patients. [10]

In 2005, a comparative study was conducted, in which the study group and the control group were formed by the same patients in normal habits and caffeine restriction. Patients received as instruction for the first vestibular test (vectoelectronystagmography): fast 3 hours before the test, suspension of nonessential drugs and alcohol (72 hours before the test), and cigarette and products containing caffeine (24 hours before).

The second test had the same guidelines except the restriction of the use of products containing caffeine. Most participants (69%) chose to undergo the examination with the habitual intake of caffeine. The most frequent complaints during the examination caffeine abstention were anxiety (95%), headache (70%), nausea and/or vomiting (40%), and more intense vertigo during the test (39%).

As the result of the examination, no abnormality was found in the oculomotor tests and there was no statistically significant change between the responses found in the caloric test. [11] A research with 30 healthy young people was conducted to find out how coffee affected VEMP and vectoelectronystagmography. For this, they conducted the tests twice, one with a 24-hour caffeine limitation and the second after consuming a cup of coffee. The findings demonstrated that a small amount of caffeine did not affect the test outcomes. [12]

Caffeine should be taken into account as a triggering factor for the beginning of symptoms in those who are prone to Ménière's illness, according to Sanchez-Sellero. The authors proposed that those demographic groups with a greater risk of Ménière's illness should be advised to minimise their coffee use. [13] Studies looking at how caffeine affects the auditory system may be discovered in greater numbers. Caffeine is thought to have

an impact on both peripheral and central auditory circuits. [14]

Ménière's disease is a crippling and progressive ailment that can make it impossible for the sufferer to perform activities of daily life and cause permanent hearing loss. One alternative that is frequently suggested to people with Ménière's as a first-line treatment is diet modification, particularly limiting salt, caffeine, and alcohol intake; in fact, this option is highlighted on both the UK National Health Service (NHS) and Ménière's Society websites.

CONCLUSION

Physicians advise patients with Meniere's disease to cut back on their intake of salt, caffeine, and alcohol in addition to pharmaceutical treatment. Despite being frequently taken, caffeine's exact mode of action is still unknown. Substances that change the organism's homeostasis may affect the vestibular and auditory systems. The diet recommendations for the assessment and treatment of patients with vertigo and tinnitus so remain based on clinical experience, even if the interaction of caffeine with the cochlea and the posterior labyrinth is not better understood. Finally, further research will be required to clarify these issues and help determine the best course of action for the Meniere's disease patient.

REFERENCE

1. Koenen L, Andaloro C. Meniere Disease, *et al.* StatPearls Treasure Island (FL). 2019.
2. Basura GJ, Adams ME, Monfared A, Schwartz SR, Antonelli PJ, Burkard R, Bush ML, Bykowski J, Colandrea M, Derebery J, Kelly EA, *et al.* Clinical Practice Guideline: Ménière's Disease Executive Summary. *Otolaryngology–Head and Neck Surgery*. 162(4), 2018, 415-34.
3. Nakashima T, Pyykkö I, Arroll MA, Casselbrant ML, Foster CA, Manzoor NF, Megerian CA, Naganawa S, Young YH, *et al.* Meniere's disease. *Nature reviews Disease primers*. 2(1), 2016, 1-8.
4. Oberman BS, Patel VA, Cureoglu S, Isildak H, *et al.* The aetiopathologies of Ménière's disease: a contemporary review. *Acta Otorhinolaryngologica Italica*. 37(4), 2017, 250.
5. Alhaqbani MH, Haddadi MA, Aljahdali ES, Alandijani WA, Alkhudhair SI, Alshammari SS, Alghazwi TA, Alzahrani TR, Leslom AN, Alanazi WM, *et al.* Assessment of Hearing Screening Tests in Pediatric. *Arch. Pharm. Pract.* 10(3), 2019, 9-12.
6. Alford BR. Disease: criteria for diagnosis and evaluation of therapy for reporting. Report of subcommittee on equilibrium and its measurement. *Transactions of the American Academy of Ophthalmology and Otolaryngology*, 76, 1972, 1462–4.
7. Stern TA, Gross AF, Stern TW, Nejad SH, Maldonado JR, *et al.* Current approaches to the recognition and treatment of alcohol withdrawal and delirium tremens: —old wine in new bottles! or —new wine in old bottles!. *Primary Care Companion to The Journal of Clinical Psychiatry*, 12(3), 2010, PCC.10r00991.
8. Chou T. Wake up and smell the coffee —Caffeine, coffee and the medical consequences. *Western Journal Medicine*, 157(5), 1992, 544-553.
9. Mikulec AA, Faraji FF, Kinsella LJ, *et al.* Evaluation of the efficacy of caffeine cessation, nortriptyline, and topiramate therapy in vestibular migraine and complex dizziness of unknown etiology. *American Journal of Otolaryngology*, 33(1), 2012, 121-127.
10. Klagenberg KF, Zeigelboim BS, Jurkiewicz AL, Martins-Basseto J. Vestibulocochlear manifestations in patients with type I diabetes mellitus. *Brazilian Journal of Otorhinolaryngology*, 73(3), 2007, 353-358.
11. Felipe L, Simões LC, Gonçalves DU, Mancini PC, *et al.* Evaluation of the caffeine effect in the vestibular test. *Brazilian Journal of Otorhinolaryngology*, 71(6), 2005, 758-762.
12. McNerney K, Coad MI, Burkard R, *et al.* The influence of caffeine on calorics and cervical vestibular evoked myogenic potentials (cVEMPs). *Journal of the American Academy of Audiology*, 25, 2014, 261-267.

13. Sanchez-Sellero I, *et al.* Caffeine Intake and Menière's Disease: Is There Relationship?, *Nutr Neurosci*, 21(9), 2010, 624-631.
14. Dixit A, Vaney N, Tandon OP, *et al.* Effect of caffeine on central auditory pathways: An evoked study. *Hearing Research*, 220(1-2), 2006, 61-66.