JBP
Journal of Biochemicals and Phytomedicine
eISSN: 2958-8561

A Review on Management of Meniere's Disease with Unani Medicine

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ARTICLE INFO

Article Type:
Review

Article History:
Recived: 09 Jun 2022
Revised: 21 Aug 2022
Accepted: 29 Aug 2022
Available online: 1 March 2023

Keywords:
Treatment
Meniere's disease
Unani medicine
Remedy

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ABSTRACT

Meniere's disease, it is a disorder in the inner ear that causes complications such as severe dizziness, ringing in the ears or tinnitus, hearing loss and a feeling of fullness or congestion in the ear. It is characterized by vertigo, tinnitus, sensorineural hearing loss, and aural fullness. Meniere's disease's primary pathology disease is the distension of the endolymphatic system due to an increased volume of endolymph. This can result either from increased production of endolymph or its faulty absorption or both. The description of hypothyroidism as a disease is not directly found in Unani texts. However, in Unani medicine, the signs and symptoms of Meniere's disease such as Vertigo, tinnitus, Sensorineural hearing loss, and aural fullness were linked to clinical manifestation in the context of Su-e-Mizaj Barid Maddi (derangement in cold temperament) as a result of excessive production of endolymph. On the basis of this fact, an attempt has been understanding the illness and how Unani Medicine treats it is provided.

Please cite this paper as:
Chishti MA, Akram M, Zainab R, Laila U, Khalil MT. A review on management of Meniere's disease with Unani medicine. Journal of Biochemicals and Phytomedicine. 2023; 2(1): 25–31. doi: 10.34172/jbp.2023.7.

Intorduction

Meniere's disease (MD) is an inner ear illness marked by endolymphatic system enlargement. This disease is known as endolymphatic hydrops and is associated with spontaneous episodic attacks of vertigo, tinnitus, sensorineural hearing loss, and auditory fullness (Beasley et., 1996: Dhigra et al., 2004). Nevertheless, the mentioned disease is still known as a difficult disease to diagnose and treat. Prosper Meniere was the first who recognized Meniere's disease. It affects 2 persons per 1,000 people approximately (Sandhya et al., 2019). The worldwide incidence of Meniere's disease is approximately Twelve in a thousand people. In Germany, the prevalence rate is 205/100,000, but just 34.5/100,000 in Japan (Hülse et al., 2019). It is typically encountered in the age group of 35-60 years and male are more affected than females.1 Inner ear consists of 2 parts: bony labyrinth & membrane labyrinth. Endolymph fills the membranous labyrinth, while perilymph fills the area between the membranous and bony labyrinths. It comprises of the cochlear duct, the utricle & saccule, the 3 semi-circular ducts and the endolymphatic duct & sac. Cochlear duct is partitioned by two longitudinally running membranes that separate three chambers, the scala tympani, scala medium and scala vestibuli. The other boundaries are represented by Reissner's membrane, which runs obliquely with respect to the basilar membrane from a tissue ridge, the spiral limbus close to the modiolus, and the lateral wall, which runs along the interior of the bony wall. The scala

media is triangular in section. The organ of Corti runs in a spiral along the floor of the scala media, situated on its lower boundary, an acellular layer called the basilar membrane (Nasir et al., 2021). The purpose of this study is an overview of Meniere's disease and administratorship of this disease is based on Greek medicine

Concept of Meniere's Disease in Unani Medicine

Amraz-e- Uzn Anaf wa Halaq is a branch of Unani Medicine where problems linked with Eyes, Ears, Nose and Oral cavity has been discussed. As per the Unani scripture, Uzn is an important sense organ when the patient complained of post nasal discharge and its worsening in winter, called Nazlah and abnormal accumulation of (Balgham) phlegm and causative pathologic chemicals in the brain. These Balgham or pathogenic substances of brain poured down to ear causing vertigo, tinnitus, deafness and other features. The following are the etiological factors: exposure to cold air, swimming or diving, prodding the external auditory canal, noise pollution, and untreated chronic systemic disease. According to this physicians the remedy is based on lifestyle modification, warming up the body, strengthening the brain and the nervous system, also the removal of waste materials and accumulated abnormal humors from the body, especially from the head (Jahangir et al., 2014).

Etiology

MD is currently thought to have a number of contributing causes, including genetics, impaired endolymphatic sac absorption, vasomotor disturbance, viral infection, allergies, sodium and water retention, hypothyroidism, and autoimmune. Given its familial clustering and higher prevalence in Caucasians, MD's onset and progression are genetically driven (Ohmen et al., 2013). MD may be brought on by viral infection, according to many experts (Williams et al., 1987; Cotter et al., 1994). Vestibular ganglion cells have been found to contain viral structures. Acyclovir, an antiviral drug, was able to treat MD-related vertigo in 91% of patients (Gacek, 2009). A recent systematic evaluation found that CMV infection was three times more likely to be linked to MD than controls (Dean et al, 2019). A third or so of MD cases appear to be caused by AD. Cross-reaction hypothesis, intolerance theory, hereditary factors theory, and bystander harm theory are a few of the theories put out to explain how autoimmune inner ear disease might develop (Dornhoffer et al., 1997; Gloddek. and Arnold, 2002). Rheumatoid arthritis, with a mean point prevalence of 4.3%, was the condition that was most frequently recorded in patients with MD. While some said that thyroiditis, which accounts for 12.7% of autoimmune diseases, is the most prevalent one (Teggi et al., 2020; Kim et al., 2020). Duke first suggested that MD might be brought on by an allergic reaction in 1923 (Duke., 1923). Food and inhalant allergies have been reported to have a connection to MD (Powers., 1973). In his original account, prosper made the possible connection between migraine and MD. Patients with MD have a higher lifetime prevalence of migraine (Radtke et al., 2002). Though a small number of research have been done, some have suggested that vascular abnormalities may play a significant role in the development and progression of MD (Foster and Breeze, 2013). EH is associated with alterations in the cochlea's microvasculature, including microscopic tears in the membranous labyrinth (Yazawa et al., 1998). Trigeminovascular dysfunction may be the cause of both migraine and MD. According to a study, the prevalence of allergy and migraine co-occurring was nine times higher in the MD group than in the control group. There are striking similarities between MD, allergies, and migraines in terms of how the symptoms manifest as well as the vascular changes that occur during the symptom onslaught, including vasoconstriction, vasodilatation, and plasma extravasations.

Pathology

The major pathology of an enlarged endolymphatic system affects the cochlear duct (scala medium), saccule, and minor extents of the utricle and semicircular canals. The dilated cochlear duct may completely fill the Scala Vestibule, impairing hearing, resulting in tinnitus and diminished hearing. Enlargement of the utricle, saccule, and semicircular canals may be a sign of a problem with balance control, which could cause vertigo. Thus, it is clear that the patients suffer the three symptoms. Despite not being the pathophysiological mechanism directly mediating the disease process, EH is an event connected to a wide range of inner ear disorders (Baloh, 2001; Lundquist et al., 1964). Using magnetic resonance imaging (MRI), several researchers demonstrated that every single living case of confirmed MD included symptoms of EH (Fiorino et al., 2011; Nakashima et al., 2010). EH may be fluctuating and MD may fundamentally be a bilateral disease. 23.3% of the "asymptomatic ears" had EH (Yazawa. and Kitahara, 1990; Liu et al., 2015). Additionally, some MD patients experienced ES atrophy, hypoplasia of the VA, and constriction of the endolymphatic duct lumen (Clemis and Valvassori, 1968). A recent study showed that saccular hydrops would be predicted by a discontinuous VA (Mainnemarre et al., 2020)

Clinical Features of Meniere's Disease

When it comes to symptoms, vestibular and auditory symptoms can happen simultaneously or separately, at different frequency (such as daily or monthly), and with some main symptoms (such as those that are more vestibular than auditory in nature). Permanent hearing loss and vestibular hypofunction over time may remain mild to moderate or may get worse (Friberg et al., 1983; Gürkov et al., 2019). Known inciting variables, such as a high salt intake, coffee use, or stress, may cause symptoms to appear or they may not. The illness usually manifests unilaterally at first. From 9.1% (less than a year) to 41.5% (more than 20 years), the incidence of bilateral involvement rose with the length of the disease (Rauch, 2010; Kitahara et al., 1990). It also comes in two unique variations. Drop attacks (DA), which Tumarkin first

referred to as "otolithic catastrophes" in 1936, occurring without warning and without the victim losing consciousness (Tumarkin, 1936). It has been hypothesized that DAs typically happened when the severity of EH deteriorated (Wu et al., 2019). Hearing improvement is observed in the ear that was damaged by the Lermoyez syndrome, which includes cochlear symptoms like hearing loss and tinnitus that initially emerged after, during, or just prior to a rapid bout of vertigo. The flow of endolymph from the cochlea flooding into the semicircular canals may be the cause of the blockage in the ductus reunions brought on by dislodged saccular otoconia. Males and some older people are most likely to develop Lermoyez syndrome (Shen and Young, 2018; Schmidt and Schoonhoven 1989). The elderly and children are two specific populations where MD can arise. In 10% of MD patients, the disease started after the age of 65 (Espinosa-Sanchez. and Lopez-Escamez, 2016). Additionally, older individuals appear to be more likely to experience a drop attack (Vibert et al., 2010). Pediatric MD is uncommon, with an incidence of 1%–2.3% among patients with MD. Pediatric MD is more common than adult MD in terms of bilateral ailment, symmetrical hearing levels in both ears, and positive family history (Vibert et al., 2010; Wang et al., 2018)

Diagnosis

The tympanic membrane did not show any abnormalities during otoscopy examination. Nystagmus is only visible during an acute attack, and its fast component moves toward the unaffected ear. Testing of tuning forks reveals sensorineural hearing loss (SNHL). Weber lateralized to a better ear, Rinne +, ABC reduced. Additional studies that included in vivo patient EH observation further supported the idea that EH should be viewed as a histologic marker for MD rather than a real clinical cause. Although EH and hearing loss are closely associated, Meniere's symptoms are not always a consequence of EH. EH could be seen in both symptomatic and asymptomatic ears of MD patients (Liu et al., 2015).

Cochlea Function Assessment

Clicks Since the 1970s, EcochG has been utilized to diagnose EH. In patients with EH, EcochG exhibits a high average summating potential (SP) to action potentia (AP) ratio. The click SP/AP ratio has been used as a diagnostic tool for MD all over the world and served as the foundation for a number of publications. Auditory Nerve Overlapped Waveform (ANOW) is a novel approach that can aid in understanding low frequency hearing loss in the early stages of MD (Lichtenhan et al., 2017). The apical part of the cochlear turn is where ANOW is born. Researchers thought that in order to detect apical turn hydrops, ANOW alterations were more sensitive than conventional CAP criteria.

Pure Tone Audiometry SNHL

Lower frequencies are affected in the early phases, and the curve is rising. Higher frequencies cause curves to become flat or falling in shape.

Speech Audiometry

The discrimination score ranges from 55 to 85% in normal circumstances between attacks, but it suffers during and right after one. Recruitment positive, Short increment sensitivity index (SISI) >70%, and Tone decay test-decay 20 dB are used to distinguish between retrocochlear and other conditions.

Electrocochleography

When tone-burst and click stimuli are used, and the responses are recorded transtympanically at the promontory, these conditions are the most sensitive and specific for Meniere's. Giving 4g oral NaCl for 3 days prior to electrocochleography may increase the sensitivity of the test.

Serology

Fluorescent treponemal antibody absorption is required in every patient given the diagnosis of an idiopathic condition since syphilis may completely simulate Meniere’s disease.

Calorimetry Test

In 75% of cases, it demonstrates diminished reaction on the afflicted side. It frequently (most frequently) reveals canal paresis on the affected side.

Glycerol Test

Glycerol is a dehydrating agent, when administered orally; it reduces endolymph pressure and hence promotes an improvement in hearing. Audiogram and speech discrimination scores are recorded before and 1–2 hours after ingestion of glycerol. These days, electrocochleography is combined with the glycerol test because it has diagnostic and prognostic value.

Modern Treatment Concept

Typical Measurements

Reassurance, bed rest, low salt diet. Avoiding excessive alcohol consumption, smoking, and drinking only water, coffee, and tea.

Gentamicin Intratympanic Injection

Gentamicin primarily has vestibulotoxic effects and works by obliterating the secretory epithelium's dark cells, which reduces endolymph production (Nevoux et al., 2018).

Diuretics

The diuretics that are most frequently used to treat MD include chlorthalidone, acetazolamide, and hydrochlorothiazide. However, a systematic evaluation of 19 research, of which 4 were randomized trials, found that the certainty of the evidence is still relatively low that diuretics can relieve symptoms. It is a prevalent misconception that diuretics work to treat vertigo and hearing loss by lowering endolymph volume and pressure. Rosenbaum, however, discussed the potential that a sudden drop in blood pressure caused by diuretics could result in a negative sympathetic response and provide the cochlear vasopressin receptors false information. This would eventually result in permanent inner ear damage (Rosenbaum and Winter, 2018; Crowson et al., 2016).

Acute Therapy

To reduce their loss from vomiting, general methods are combined with intravenous fluids and electrolyte supplementation. Vasodilators like carbogen, which enhances circulation in the labyrinth, and vestibular sedatives like prochlorperazine, dimenhydrinate, etc.

Chronic Therapy

Treatment for a chronic illness includes the use of hormones (if hypothyroidism is present), vasodilators, diuretics, propantheline bromide, and vestibular sedatives.

Endolymphatic Sac Surgery

For patients with resistant MD in the early stages, endolymphatic sac surgery (ELSS) is the chosen treatment. It is possible to maintain both hearing and vestibular function. Surgery called endolymphatic sac decompression (ESD) is well-liked for its simplicity of use and lack of serious problems afterward. In 64.5 to 90% of patients, ESD has been demonstrated to be effective in treating vertigo and hearing loss (Sood et al., 2014). Because it is difficult to run a single-blind or double-blind trial in the surgical treatment of MD, there is ongoing debate about the efficacy of ESD. Some medical professionals doubt its long-term effectiveness and believe that the procedure's ability to reduce vertigo is more a product of the placebo effect than of the actual technique. Endolymphatic duct blocking (EDB) surgery has recently been proposed by Saliba et al. as a new surgical method for treating MD. After a 24-month follow-up, they reported that the EDB group had 96.5% total control of the vertigo and the ESD group had 37.5%. Both groups' hearing levels were kept in good condition. A considerable improvement was also noted in the assessment of quality of life (Saliba et al., 2015).

Destructive Surgery

In patients with intractable MD, labyrinthectomy and vestibular neurectomy (VN) are thought to provide the best chance of controlling vertigo. When patients have impaired but usable hearing, VN may be an option. Patients with severe to extensive senserineural hearing loss are candidates for labyrinthectomy. After VN, problems include meningitis, cerebrospinal fluid leaks, and epidural hematomas are possible. Yu stated that both the labyrinthectomy group and the VN group had 100% vertigo control. Both groups experienced an improvement in quality of life. Destructive surgery is becoming less and less common (Yu et al., 2019).

USOOL-E-ILAJ (Principle of Treatment)

In the Unani system of medicine, the major emphasis of Usoole-Ilaj (principle of therapy) is: use of Musakkin (Sedative). Use of Mufatteh Urooq (Vasodilators). Use of Mudire Baul (Diuretics) (Diuretics). Khilt Gair Tabai should be fired (Abnormal humour).

Ilaj (Treatment)

The treatment philosophy in the Unani system of medicine is founded on Usool-bil-Zid (principle of contradiction). Ilaj-bil-Dawa (pharmacotherapy), Ilaj-Bil-Ghiza (diet therapy), Ilaj-Bil-Tadabeer (regimental therapy), and Ilaj-Bil-Yad (manual therapy/surgery) are the four treatment modalities.

Ilaj Bil Dawa (Medication)

As Musakkin (Sedative) medications, Khamira Khaskhash 3-5gm, Dayaqooza 10ml, Barshasha 1gm can be given for this purpose. As Mufatteh Urooq (Vasodilators) and Mudire Baul (Diuretics), Banadiqul Bazoor 2 tab with sharbat bazoori 20 ml and sharbat Ustookhudoos 20 ml in the morning and evening. A decoction of Tukhme Khayarain 10 gm, Tukhme Kharpaza 5 gm, Tukhme Kasni 5 gm, Kharkhasak 7 gm, Mako khushk 5 gm, Ustookhudoos 5 gm, and Badranjboya 5 gm combined with Sharbat Deenar 20 ml Jawarish Jalinoos 5gm. In the case of Dawar, Hareera Maghz badam in the morning and Itrifal Kashneezi 7 gm at night (Vertigo).

Ilaj Bil Ghiza (Dietotherapy)

It is advised to follow a diet like Jaiyyad ul Kaimus (regular chyme), Lateef (tight diet), and Saree-ul-Hazm (quick appetizer). Patient should adhere as closely as possible to a salt-free diet. Limit your consumption of water, tea, coffee, and alcohol.

Regional Therapy Ilaj-bil-Tadabeer

Rose leaf decoction applied to the head as a medical irrigation (Barge Gulab). Hijama (Cupping) on the C7, neck, and pre-auricular area. Foot bath called Pashwiya made from a decoction of Barge Beri and Badiyan (Nasir et al., 2021).

Future Prospective

MD is a condition with overlapping auditory, vestibular, and neurovascular symptoms rather than a single illness. All MD patients are more susceptible to conservative treatments, including a change in lifestyle, oral medication, and vestibular rehabilitation, than they are to disruptive ones, like surgery and intratympanic gentamicin. This much is clear. The future of diagnosis and treatment is headed in the direction of MD. We have reached the point where we can diagnose patients with MD with certainty. The ideal strategy is still a long way from being identified by researchers. If the specified by the various ways genuinely overlap, and why, will be determined by further studies that integrate the above strategies. In addition, a number of variables, including allergies, anxiety and depression, sleep quality, and vestibular ossification, need further study (Kim et al., 2020; Kim et al., 2018; Frejo et al., 2018).

Conclusion

It is concluded that Meniere's disease is a condition that needs to be assessed correctly and proper measures should be adopted in its management. Erratic life styles, bad eating habits and lack of exercise could contribute towards

getting Meniere's illness. Because it is severely detected and badly treated with increasing prevalence even in the Indian society. To prevent further complications with Meniere's disease, early treatment should be initiatedthe aid of ayurvedic medicine. The use of Musakkin (sedative), Mufatteh Urooq (vasodilators), Mudir-e-Baul (diuretics), and Removal of Khilt-e-Gair Tabai (Abnormal Humor) along with Ilaj-Bil-Tadabeer (regimental therapy) should therefore be included in the treatment protocol for Menier's disease in order to achieve the best results.

Declarations

Conflict of interest

There is no conflict of interest among the authors.

Consent for publications

The authors approved the manuscript for publication.

Acknowledgement

We thanks to Department of Eastern Medicine, Government College University Faisalabad-Pakistan is thanked for scientific support.

Funding/support

None.

Authors' contributions

The authors have contributed equally to the writing of the article.

Ethical considerations

Ethical issues (including plagiarism, misconduct, data fabrication, falsification, double publication or submission, redundancy) have been completely observed by the author.

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