Translation with „deepl“:
Schaaf, H. Psychosomatik bei an M. Menière Erkrankten. *HNO* **73**, 167–174 (2025). https://doi.org/10.1007/s00106-024-01484-1

Dr. Helmut Schaaf

Balance Institute at Arolsen Hospital,
Große Allee 50, 34454 Bad Arolsen - www.tinnitus-klinik.net

HSchaaf@tinnitus-klinik.net **/ www.drhschaaf.de**

Psychosomatic Medicine for patients with Meniere’s disease

Summary: Menier's disease (MD), a syndromal inner ear disease, is commonly associated with a pathological accumulation of endolymphatic fluid in the inner ear, termed "idiopathic" endolymphatic hydrops (IEH). Unpredictable attacks of vertigo with or without emesis, unilateral hearing loss, and tinnitus characterize the inner ear disorder that is classified as part of Meniere's disease (MD). While the pathological final stage with cochleovestibular hydrops seems to be certain as a component of MD, there are many uncertainties with respect to the multifactorial pathogenesis.

It is certain that the disease can have effects in addition to the attack, which questions the treatment of things that were previously taken for granted. Persistent perceptual and postural dizziness [19] and reactive psychogenic dizziness [18] can occur, so that in the course of the disease a mixed picture of organic and psychogenic dizziness can develop. In addition, there is an increased anxiety and depression comorbidity.

The progress, suffering, and experience of the disease depend essentially on the processing and the active acquisition of coping strategies as well as - also the medical - treatment of the patient[s], who in their distress seek and need a knowledgeable and reliable practitioner at their side.

Therefore, the effects on the affected persons and suggestions for the most helpful treatment of Meniere's disease sufferers shall be described here in detail.

Clinic and symptoms

According to the Bárány classification [8], clinically definite Menière's disease can be assumed in the case of

- two or more spontaneous attacks of vertigo lasting between 20 minutes and 12 hours,
- an documented hearing loss of the low to medium frequencies in the affected ear, at least once before, during or after a vertigo attack, at least 35 dB or at least 30 dB above the contralateral threshold, in at least 2 neighbouring frequencies below 2000 Hz,
- The prerequisite is that the symptoms cannot be better explained by another diagnosis.

The frequency of organically induced attacks can vary from several times a month to very rare attacks that only occur every few years. During the course of a Meniere's attack, 3-7% of patients may experience a sudden drop attack from a state of complete well-being without any warning signs [11].

Important differential diagnoses are basilar migraine and cochlear hydrops disorders (endolymphatic fluctuations) without vestibular symptoms [3].

Be aware: The symptoms of the disease change over the course of the disease.

- The attacks of vertigo decrease (as a rule).

- Vestibular hypofunction occurs, usually on one side.

- The hearing loss (usually) increases.

- A persistent feeling of dizziness can take over, which patients describe as follows: You are groggy, unsteady, wobbly, jostling, confused in the head, have a booming feeling and anxiety, often a lot of anxiety. Whole days are now "Menière's days". In certain situations, this feeling can be experienced like a Menière's attack.

It is hardly surprising that the frequency and unpredictability of the dizziness attacks experienced has an influence on mental health. Patients with repeated dizziness attacks are more likely to suffer from anxiety disorders and depression [7, 23].

In addition, there may be more frequent illnesses associated with dizziness, such as BPPV, migraine, polyneuropathy or eye and circulatory diseases that require different treatment.

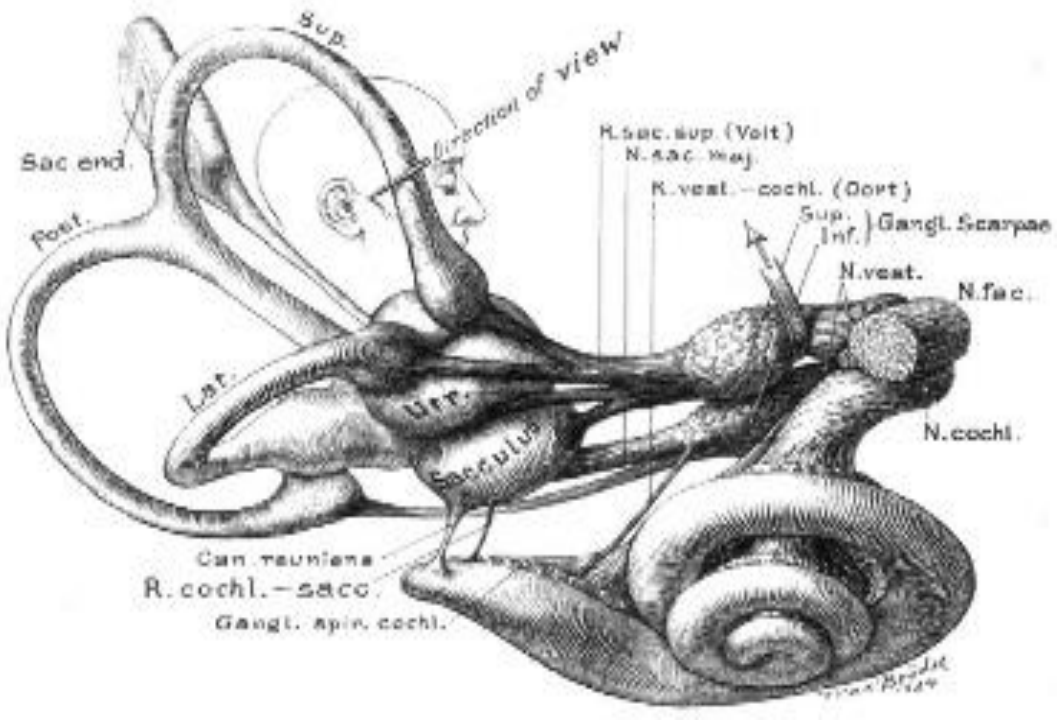

Fig. 1: The human labyrinth. The person behind the organ of equilibrium is also recognisable [Max Brödel 1934]

Psychosomatic dizziness that outlasts the organic vertigo

Meniere's disease is an example of how a dramatic organic vertigo can develop into an increasingly persistent and reactive psychogenic vertigo component. The elements of a lack of readaptation to the inhibition of vestibular functions during an attack play an important role. Staab et al. [19, 22] has essentially this as "Persistent Perceptual and Postural Dizziness" [PPPD] [20].

Staab et al [21] assume that the central nervous system is able to inhibit dysfunctional impulses from the affected part during balance crises. The anxiety system, which can (unconsciously) influence the vestibular inputs, was identified as a key maintaining factor. The limbic system has the ability to increase the threshold for impulses from the vestibular organs in the case of anxiety - even without an organic source of dizziness. If these primarily sensible adaptations cannot be abandoned ("failed readaptation"), the visual and proprioceptive systems dominate the vestibular system. As the visual system is only capable of spatial orientation as a reference in a stationary environment, "visual dominance" leads to destabilisation as soon as the environment is in motion, for example in traffic situations. This can lead to the erroneous perception of apparent movements.

Overstraining the visual system also has an impact on activities that would not normally be associated with reduced performance of the vestibular system. This applies to tasks with complex and precise requirements such as computer work or long car journeys. This in turn results in greater visual fatigue, possibly headaches and greater exhaustion.

For this reason, adaptations that make sense in the acute stage, must be abandoned again once the disorder has ended. After an acute Menière's attack, an organic recovery in movement behaviour occurs usually very quickly. Also, the loss of balance that remains after the individual attacks, is usually so small that it can be compensated during the attack-free period.

A persistent inhibition and a persistent feeling of dizziness can remain, for example, if anxiety persists. The anxiety may have accompanied life beforehand or develop and intensify with the dizziness. Fear and caution are often coupled unfavourably with avoidance behaviour, which in turn leads to existing abilities no longer being used and being "unlearned" to a certain extent. In extreme cases, this leads to "staying put" because movements are experienced as dizziness. This can lead to a permanent loop of increased reaction to movement stimuli with persistent securing behaviour. The same factors increase the risk of an anxiety disorder or depressive reaction - and then again of maladaptation. In the worst-case scenario, a sustained loop of failure to recover and movement-dependent triggering factors can become entrenched. Those patients then remain subjectively and persistently in a constant state of maladaptation.

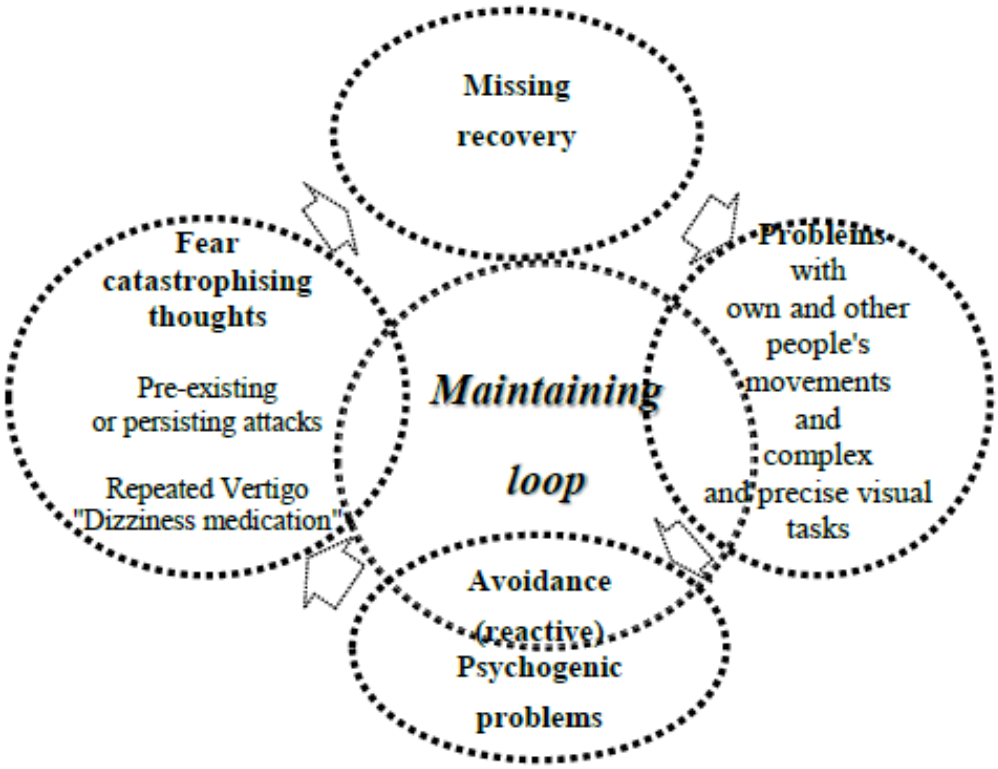

Fig. 2 The " loop" of "failure to recover" and movement-dependent "triggering factors" described by Staab 2012

Who is at risk?

One reason for such a development may be the fear that the Meniere's attack - or its effects - are not yet over. Another reason is a persistent fear, that an next attack will come soon. Both can be unfavourably "reinforced" by repeated organic events, which can occur with Menière's disease, even if these are usually much rarer than it is feared "in anxious observation". In addition, the development towards a functioning balance can be delayed in the case of

- little personal and professionally confidence in success,
- balance-inhibiting medication "against the dizziness" instead of balance exercises,
- overlooking a possible pre-existing psychological impairment or a psychological impairment that develops with the dizziness,
- avoiding activities that are still possible and necessary in order to get back on one's feet.

Reactive, psychogenic dizziness

In addition, there are conditioning effects, such as those seen in reactive psychogenic vertigo [18]. The names vary, whether they are called secondary phobic attack vertigo [1], somatoform vertigo [2], functional vertigo or reactive psychogenic [18]. The mechanism of reactive psychogenic dizziness can be well explained by the mechanisms of classical conditioning, among others.

In an acute Menière's attack, the endolymphatic activity initially triggers

- dizziness [usually as attacks of vertigo]

- tinnitus, usually low-frequency

- hearing loss.

The severity and threatening nature of the symptoms, to which the patient can feel completely helpless, especially before the diagnosis is made, mostly leads to - uncertainty, fear and panic with the many associated vegetative symptoms.

Accompanying circumstances of the dizziness event can become triggers

Since the Menière's attack always occurs in a specific situation of any kind, it can happen, that the original accompanying circumstances and "stimuli", which until then had no direct causal relationship to the Menière's event, now themselves become the trigger for the anxiety reaction and experience of dizziness.

These accompanying circumstances are often:

- an increase in the loudness of the tinnitus, which could also precede the organically induced vertigo,

- sudden hearing loss,

- any situation associated with vertigo attacks,

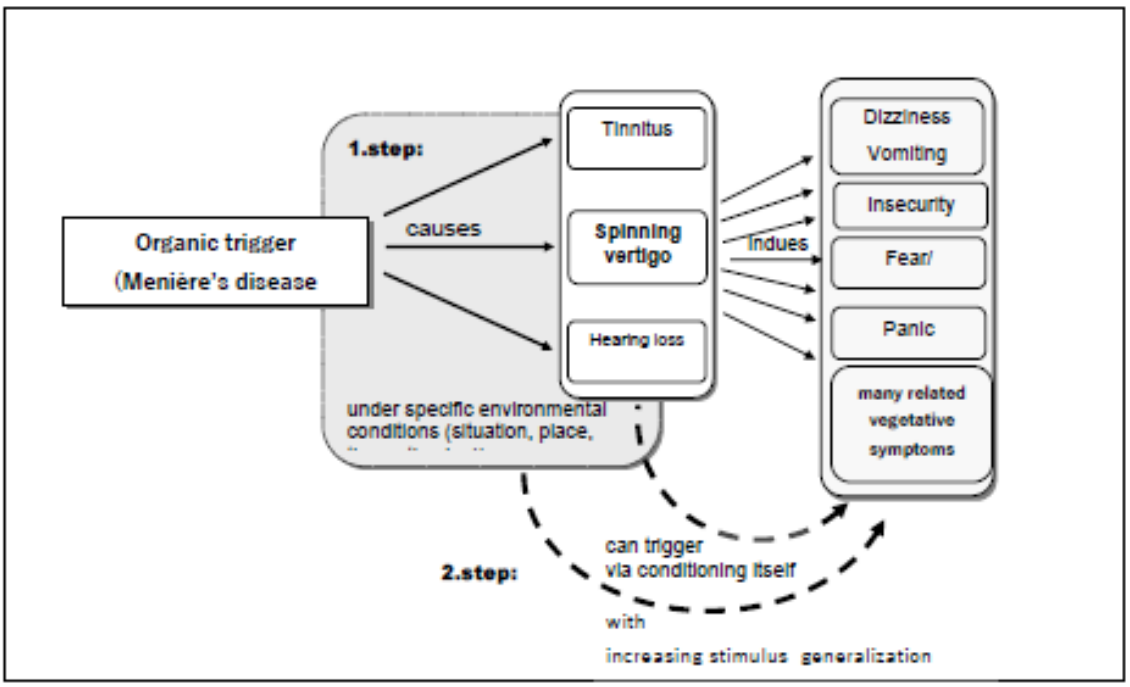

Fig. 3: Step 1 and step 2 of classical conditioning. An initially simultaneous event can itself become a triggering stimulus with appropriate sensitivity and subsequent adequate reinforcement [from 14].

Due to the usually very intense and aversive experience of a Menière's attack accompanied by strong feelings of anxiety, a single coupling is sometimes sufficient to turn the above-mentioned accompanying circumstances into triggers of a now “learnt”, psychogenic vertigo. In addition, the triggers can become increasingly unspecific in the course of a so-called "stimulus generalisation". This means that even similar situations or the stimuli occurring in them can lead to dizziness.

Cognitive processes in the consolidation of a reactive psychogenic vertigo

However, there must be other processes in the processing of the illness that help to understand why reactive vertigo develops in some sufferers. Unfavourable cognitive-emotional processing, for example a low assessment of one's own coping skills or attention processes centred on the illness, can contribute to this. As unfavourable basic assumptions, persistent attitudes can be dysfunctional reinforced, e.g. "I am not good enough" or "I must always be able to cope without restrictions."

Also unhelpful are irrational judgements and "systematic thinking errors" such as "I must be unassailable despite my illness" or "Meniere's disease will destroy my life" [for details see 14].

The most common feeling that accompanies vertigo is anxiety. The main factor for persistent anxiety in Menière's patients is the unpredictability of the attacks and the loss of control [2]. Added to this can be the perceived embarrassment [shame] of being observed by others in vomiting, as well as the feeling of being handicapped.

This complex symptomatology - which may be difficult to categorise in individual cases - is often complicated by a further aspect: Anxiety and panic can in turn make patients feel dizzy themselves, which in the worst case can initiate a permanent, escalating process of vertigo-fear and anxiety-dizziness.

It is important to emphasise that these mechanisms usually occur unconsciously and independently of the severity of the organic event [2].

Thus, psychogenic dizziness can become entrenched even if the vestibular organ has long since lost its function. So many Menière's patients who were treated as inpatients in our Clinic had suffered more, longer and more severely from psychogenic vertigo than from the - relatively rare - attacks of rotatory vertigo caused by the inner ear [14, 16].

Therapy is helpful in the Long-term

There are diseases that are easier to diagnose and treat than Meniere´s disease. If the organic component of Menière's disease appears to be as certain as possible, the unpredictability of its course remains. There also remains - to put it mildly - a therapeutic uncertainty, as there is currently no curative treatment for Menière's disease. Nevertheless, there are many ways to mitigate the effects of the disease as much as possible and to create compensatory possibilities.

This includes

- effective attenuation of the acute vertigo attack,
- at least hopeful approaches with regard to intratympanic cortisone therapy,
- improving technical compensation aids for hearing impairments,
- the possibilities of reducing and, if necessary, eliminating the function of the vestibular organ, for example with intratympanic gentamycin, if the vertigo attacks may not be tolerated any more.

Explanation

In the course of the illness, the suffering and experience of the illness depend on the processing and active acquisition of coping strategies. These are focusing on equalising and compensating for the lost balance as well as regaining a possibly altered quality of life. The feeling that the illness is under control also depends on the experienced support, personally and professionally.

It is not always necessary to do "something".

However, it is helpful if those affected are clearly informed about the organic process and its effects. An "information sheet" can also be provided for this purpose, e.g. from the Meniere society. This alone can lead to an improvement in behaviour [26].

Once again explanation and support

It is already difficult to understand and cope with somatically triggered vertigo. It doesn't get any easier when additional factors are added. This is why the explanation is so important. It can be liberating to understand why a "permanent dizziness" can develop as a result of physical damage. The PPPD approach has the merit of looking at persistent dizziness from its organic component and not "only" focussing on the anxiety component. In this way, persistent dizziness cannot be understood "only psychologically" as a possible symptom of anxiety, but can be expertly explained in its vestibular context.

It is helpful if the justified impression can arise, that the doctor is more experienced in his knowledge and therapy suggestions than the patient. At the same time, pointing out that you have reached your limits with certain issues can be both truthful and leading to confidence. It is also perfectly acceptable for doctors to point out that they have limited time quotas.

If patients are able to cope adequately with their illness, it is useful and effective to enable them to prepare themselves for a possible vertigo attacks. This requires the following:

1) Suppositories and oral medication against nausea, e.g. Dimenhydrinate supp. or Tavor expidet for "reliable" patients,

2) A bag in case vomiting occurs,

3) A mobile to call for help if necessary and to film nystagmus. This is important on the one hand to

confirm the diagnosis, but on the other hand also to recognise the possible transition to psychogenic dizziness in the course of the illness. However, this must be practised during the vertigo-free interval (instructions at: https://drhschaaf.de/ SchwindelAkutDiagnostik.pdf) [15]. In addition, a "hearing test app" can usually be installed. This allows hearing to be checked during or shortly after the attack.

It is also helpful for patients to be able to distinguish between organic vertigo and psychogenic dizziness. One possibility is to stand up when dizziness occurs, stamp firmly and check whether stability can be achieved by walking and pedalling. As organic vertigo are also rare in Menière's patients, such a check often improves anxiety in the more frequent psychogenic sensations.

Shaping relationships in dizziness: Who meets whom in the doctor-patient encounter?

There are always (at least) two people involved in an encounter, whereby much is predetermined by the doctor-patient relationship. On the factual level, one person seeks clarification, advice and the most effective therapy possible. The other person offers diagnostic possibilities and makes suggestions within the scope of their profession. At the same time, two people meet in a hierarchical relationship structure that is characterised, among other things, by the loss of security on the one hand and a special competence on the other.

In the case of Meniere´s disease there is at least one dilemma: On the one hand, it is difficult enough for a doctor to endure not being able to be "curative". On the other hand, there is the pressure often placed on the doctor to order or do "something helpful" at all costs.

If the doctor is then more certain about the course of the illness and the therapy than he can be, this can initially reinforce the messages he gives verbally and non-verbally. In doing so, however, he risks a false sense of security on thin ice, which can collapse with the next vertigo attack. This also means that the reliability delegated to him disappears.

If the doctor honestly keeps the possibilities open, this increases the truthfulness of his statements. However, it limits the feeling of security in the current encounter. The attitude that the patient may experience as insecurity, combined with an unwillingness to accept the situation, can then lead to a disappearance from contact with the doctor - and not infrequently to a desperate odyssey to other experts who have fewer doubts about their assessments, whether justified or not.

This dilemma - together with often ambivalent protective impulses - could lead to the doctor being tempted “to give something" in the hope that at least the placebo effect will help.

But beware: dashed hopes are also a serious side effect.

Sometimes the patient's experience of dizziness can even trigger feelings of dizziness in the practitioner. This phenomenon of "countertransference" is well known in psychotherapy and can be used as a diagnostic aid. It is nevertheless - for those less experienced in psychotherapy - "unsettling". This can trigger defence desires and reflexes in the therapist against the patient's helpless "dizziness". One could then react verbally or non-verbally as follows:

- "I can't help you with that either".

- "It's not organic (no Menière's disease), you must be swindling".

- "If you don't believe me, go somewhere else, to a specialist or a psychotherapist"

This can serve as understandable self-protection, but it is – of course - unfavourable for the patient.

When and how do I tell the patient "it"?

How can a sufficiently solid foundation be created in this structure? It starts with the question of whether and when one can and must make the often feared diagnosis ("Please don't tell me I have "Menière's disease"). Based on 30 years of experience - predominantly psychosomatically determined - an open approach to Menière's disease patients appears to be more favourable than a worrying non-response. This is all the more successful the more credibly one can make it clear - also to oneself:

- Menière's disease is not a diagnosis of death or annihilation, it is not a disease of the central nervous system such as a "stroke", progressive multiple sclerosis or Parkinson's disease, nor is it an increasing tumour disease.

- Despite the - usually one-sided - peripheral functional deficits, Menière's disease is a benign condition that can generally be treated symptomatically, if necessary by eliminating the centre of vertigo in the periphery of the vestibular systems.

Possible pitfalls in communication

- It would be unfortunate if verbal or non-verbal messages could be understood by patients:

- On the clinical picture: "We don't really know what happens, when and how".

→ We know too much for that.

- - Regarding the diagnosis: There are many other possible differential diagnoses, but these are outside my area of expertise, so I can't help you any further.

→ Instead, the way for further examination could be shown.

- - Therapy: Choosing the right therapy for Menière's patients in individual cases is a problem. “But I recommend first“ …

→ As it is still unclear what causes Menière's disease, both sides must be aware that all treatment proposals are symptom-orientated. In the long term, it is certainly favourable to limit oneself to proven effective measures. It therefore makes sense to take an evidence-based approach, even if some "eminence"-based approaches are more established and often appear more appealing in the short term.

What is helpful in the process:

- Balance training is helpful and evidence-based for persistent dizziness [5]. This is more likely to be successful under supervision and in a group, for example with dedicated physiotherapists.
- Since the study by Patel et al, we have hoped to be able to induce positive effects with intratympanic cortisone injections [4, 9], even if this does not yet have the status of "evidence-based" [24, 25].
- If vertigo attacks continue to impair quality of life and/or ability to work beyond a tolerable level, we offer intratympanic gentamycin administration. This can - based on evidence - reduce the function of the peripheral vestibular organ [10]. At low doses and at weekly intervals, this usually does not impair the already impaired hearing function any more than is to be expected in the "natural course" [6].
- Drugs that dampen balance functions and make habituation more difficult are unfavourable, including those with an relevant dimenhydrinate content.
- Psychotherapy is the treatment of choice for predominantly psychogenic dizziness. The less one feels pushed away or referred to psychotherapy, the more likely one is to seek it out.

Keeping an eye on the organics

There are good reasons to keep an eye on Menière's patients during the course of the disease (see also Table 1). For example, in the course of time, the rare disease is joined by a common disease such as BPPV, migraine, polyneuropathy or eye and circulatory diseases, that are associated with balance disorders, but require different treatment. Some Menière's diagnoses also stand on shaky ground and can often turn out to be a combination of other illnesses. For example, fluctuations in the low frequency range without vertigo are rarely the beginning of Menière's disease [17]. It is helpful to have diary recordings - preferably in a balance diary (not a dizziness diary) - and video recordings.

Perspectives

Tyrrell et al [22] were able to show that the mental health and well-being of Meniere's patients correlate with the duration of the disease. Patients with a longer duration of Meniere's disease symptoms performed significantly better than those with a more recent onset. In the longitudinal correlation, this indicates that there may be adaptation strategies that help long-term sufferers to cope better with the disease and significantly reduce the very understandable psychological impairments. The authors hypothesise that increased social support and social interaction could contribute to a satisfying way of dealing with life despite the symptoms [22]. The support provided by self-help groups such as the Meniere society can hardly be overestimated.

What can help the doctor?

A basic understanding of psychological mechanisms of action and their reflection is useful for a safe attitude. So-called Balint groups, in which their own emotional components of the encounter with the patients, who lose confidence in dizziness, are also reflected in a case-centred manner can be helpful [12, 13]. By practising psychosomatic understanding, it is then also possible not to feel "cheated" if the patient is not yet able to understand or even realise the facts - which are obvious to outsiders.

Table 1 Stage-dependent management of patients with Menière's disease

Treatment	Favourable for Menière's patients	Unfavourable
When making the diagnosis	Diagnosis using neurotological diagnostics, taking into account the differential diagnoses (especially migraine)	Making suspected diagnoses without sufficient certainty, such as "monosymptomatic Menière's disease"
After the diagnosis	Comprehensible explanation Reference to literature and self-help groups	„There's nothing you can do" "You'll have to live with it", without saying how
In the course of the disease	Despite all the realism, there is some justified hope and, above all, appropriate support Early intratympanic administration of cortisone	Predicting a fateful path to deafness and bilateral loss of balance
For hearing loss	Have hearing aids fitted, also to maintain directional hearing, CROS, CI at an early stage, if necessary	Waiting "until the stable hearing threshold"
If the anxiety component expand	Education, psychotherapeutic support, antidepressants	"I am not responsible"
With expansion of the organic vertigo component	Possibility of safe elimination (intratympanic gentamycin) Neurectomy of the vestibular nerve	Ineffective surgical interventions with repeatedly dashed hopes

Literatur:

1. Brandt TH, Dieterich M (1986) Phobischer Attackenschwindel. MMW 128:247–250
2. Eckhardt-Henn A, Tschan R, Best C, Dieterich M (2009) Somatoforme Schwindelsyndrome. Nervenarzt 80:909–917
3. Gürkov R, Hornibrook J (2018) On the classification of hydropic ear disease HNO 66:455–463
4. Harcourt JP, Lambert A, Wong PY, Patel M, Agarwal K, Golding JF, Bronstein AM (2019) Longterm follow-up of intratympanic methylprednisolone versus gentamicin in patients with unilateral Menière's disease. Otol Neurotol 40(4):491–496.
5. Hillier SL, McDonnell M (2011) Vestibular rehabilitation for unilateral peripheral vestibular dysfunction. Cochrane Database Syst Rev (2):CD005397
6. Huon LK, Fang TY, Wang PC (2012) Outcomes of intratympanic gentamicin injection to treat Menière's disease. Otol Neurotol 33:706–714
7. Lahmann C, Henningsen P, Brandt T, Strupp M, Jahn K, Dieterich M, Eckhardt-Henn A, Feuerecker R, Dinkel A, Schmid G (2015) Psychiatric comorbidity and psychosocial impairment among patients with vertigo and dizziness. J Neurol Neurosurg Psychiatry.
8. Lopez-Escamez JA, Carey J, Chung WH, Goebel JA, Magnusson M, Mandalà M, Newman-Toker DE, Strupp M, Suzuki M, Trabalzini F, Bisdorff A. (2015) Diagnostic criteria for Menière's disease. J Vestib Res.;25(1):1-7. doi: 10.3233/VES-150549
9. Patel M, Agarwal K, Arshad Q, Hariri M, Rea P, Seemungal BM, Golding JF, Harcourt JP, Bronstein AM (2016) Intratympanic methylprednisolone versus gentamicin in patients with unilateral Ménière's disease: a randomised, double-blind, comparative eff ectiveness trial. Lancet 388:2753–2762. doi.org/10.1016/S0140-6736(16)31461-1
10. Pullens B, van Benthem PP (2011) Intratympanic gentamicin for Menière‘s disease or syndrome Cochrane Database Syst Rev (3):CD008234
11. Pyykkö I, Manchaiah V, Zou J, Levo H, Kentala E (2019) Association between Syncope and Tumarkin Attacks in Ménière's Disease. J Int Adv Otol.15(1):135-140
12. Schaaf, H (2023): Balintgruppen in der HNO-Heilkunde. Forum HNO 6. 419-431
13. Schaaf, H. (2022) Der und die an M. Menière Erkrankte. Was könnte hilfreich sein? CME. Forum HNO (5) 1-11
14. **Schaaf, H (2021) Menière`s disease. Springer Verlag Heidelberg. P 300**
15. Schaaf, H (2021) Handy-Diagnostik in der Akutphase eines Morbus Menière . LRO Tipps und Tricks.S. 10-11
16. Schaaf, H, Hesse, G (2015) Patients with long-lasting dizziness. A follow-up after neurotological and psychotherapeutic inpatient treatment after a period of at least one year. European Archives of Oto-Rhino-Laryngology and Head & Neck DOI: 10.1007/s00405-014-3447-y
17. Schaaf H, Hesse G (2007) Sind rezidivierende Tiefton-Hörverluste - ohne Schwindel – die Vorstufe eines M. Menière? Eine Längsschnittuntersuchung nach 4 und nach 10 Jahren. HNO 55: 630-637
18. Schaaf H, Haid C-T (2003) Reaktiver psychogener Schwindel bei M. Menière. Dtsch Arztebl 13: 853–857
19. Staab JP (2020) Persistent postural-perceptual dizziness. Semin Neurol 40(1):130–137. https://doi.org/10.1055/s-0039-3402736
20. Staab, J P., Eckhardt-Henn, A., Horii, A., Jacob, R., Strupp, M., Brandt, Th., Bronstein, A. (2017) Diagnostic criteria for persistent postural-perceptual dizziness (PPPD): Consensus document of the committee for the Classification of Vestibular Disorders of the Barany Society Journal of Vestibular Research 27, 191–208
21. Staab, J. (2012) Chronic Subjective Dizziness. Continuum; 18(5): 1118-1141
22. Staab (2006) Assessment and management; of psychological problems in the dizzy patient. Continuum. 189-213
23. Tumarkin L (1936) Otolithic catastrophe. A new syndrome. Br. Med J:1: 175-177
24. Tyrrell J, White MP, Barrett G, Ronan N, Phoenix C, Whinney DJ, Osborne NJ. (2015) Mental Health and Subjective Well-being of Individuals with Ménière's: Cross-sectional Analysis in the UK Biobank. Otol Neurotol. 36(5):854-61. doi: 10.1097/MAO.0000000000000732
25. Schoo DP, Tan GX, Ehrenburg MR, Pross SE, Ward BK, Carey JP (2017) Intratympanic (IT) therapies for Meniere's disease: some consensus among the confusion. Curr Otorhinolaryngol Rep 5(2):132–141
26. Webster KE, Lee A, Galbraith K, Harrington-Benton NA, Judd O, Kaski D, Maarsingh OR, MacKeith S, Ray J, Van Vugt VA, Westerberg B, Burton MJ. (2023) Intratympanic corticosteroids for Ménière's disease. Cochrane Database of Systematic Reviews 2023, Issue 2. Art. No.: CD015245. DOI: 10.1002/14651858.CD015245.pub2..
27. Yardley L, Kirby S. (2006) Evaluation of booklet-based self-management of symptoms in Ménière disease: a randomized controlled trial. *Psychosom Med* 2006;68:762–769.