

Review article

Vestibular migraine (VM) management for an ENT surgeon - an update on diagnostic criteria and current management strategies

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Abstract

Overview

Vestibular migraine is a very common problem needing attention as it's a diagnosis frequently missed. This article discusses key diagnostic indicators including ID-migraine, motion sickness, phono/photophobia. Key management options including prophylactic and abortive medications are also discussed.

Findings

Using of the 3 item ID-Migraine questionnaire increases sensitivity. There is no RCT evidence that Nutraceuticals usage, restriction of MSG Caffeine Chocolates, artificial sweeteners, processed meats, alcohol and aged cheese are useful in management VM. Although beta blockers are used as prophylaxis, metoprolol may not be effective. The mainstay of abortive management is 5HT receptor agonists.

Recommendations

It is necessary to raise the awareness of the diagnostic entity and necessary training and education should be given to care givers. Future research is necessary to identify therapeutic agents and lifestyle changes specifically to be effective in this condition

Keywords: Migraine Disorders, Vertigo

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Introduction

Vestibular migraine (VM) is a diagnosis with clearly established diagnostic criteria ¹. However, an inappropriately low number of patients are diagnosed with vestibular migraine. Vestibular migraine is a “missed” diagnosis and a “misdiagnosed” and a “mismanaged” diagnostic entity. In this review article, we aim to assess the evolution of current diagnostic criteria and management strategies and recommend ways to diagnose VM more frequently and manage these patients better.

Vestibular migraine (VM) is common. Epidemiological studies conducted in Germany and the United States have indicated a prevalence of 0.9% to 2.7%². When compared with estimated prevalence for BPPV (1.6%) and Meniere’s Disease (0.2 % to .5%)⁽³⁾, it is clear that the diagnosis of VM should have been made more frequently.

VM patients, like migraines, have a higher chance of anxiety, depression, and other neurotic features. Therefore, delay in diagnosis and inappropriate or lack of treatment worsens their morbidity³. Furthermore, due to mismanagement, their vestibular symptoms tend to be chronic, disabling and difficult to treat³.

Methods

A literature search was carried out in PubMed, Google Scholar and Clinical Key databases with keywords “vestibular migraine”, “diagnostic criteria”, “management”, “guidelines”. Publications from 1984 to 2021 were selected and studied and included recent review articles on the subject.

Results

There are reports of diagnosis of VM as early as 131 AD. Aretaeus of Cappodocia is credited with the first description of vestibular migraine⁴. It was seen that in patients with Migraine, there were vestibular symptoms that cannot be attributed to known vestibular syndromes such as Meniere’s disease ⁵.

With this need, Nuehauser and colleagues proposed a set of diagnostic criteria for vestibular migraine. They prospectively evaluated 200 consecutive patients from a dizziness clinic and 200 patients from a migraine clinic. In addition, the authors compared the prevalence of migraine according to the IHS criteria in the dizziness clinic group with a sex- and age-matched control group of 200 orthopedic patients. These became popular as Neuhauser Criteria⁶.

Definite migraine-associated vertigo	
1	Episodic vestibular symptoms of at least moderate severity - Rotational vertigo, other illusory self or object motion, positional vertigo, head motion intolerance (ie, sensation of imbalance or illusory self or object motion that is provoked by head motion)
2	Migraine according to the International Headache Society (IHS) criteria
3	At least 1 of the following migrainous symptoms during at least 2 vertiginous attacks - Migrainous headache, photophobia, phonophobia, visual or other auras
4	Other causes ruled out by appropriate investigations
Probable migraine-associated vertigo	
1	Episodic vestibular symptoms of at least moderate severity - Rotational vertigo, other illusory self or object motion, positional vertigo, head motion intolerance
2	At least 1 of the following - Migraine according to the criteria of the IHS, migrainous symptoms during vertigo, migraine-specific precipitants of vertigo (eg, specific foods, sleep irregularities, hormonal changes), response to antimigraine drugs
3	Other causes ruled out by appropriate investigations

Table 1 - Neuhauser Criteria for Vestibular Migraine

International Classification of Headache Disorders^{3rd} Edition (Beta) have published consensus diagnostic criteria¹.

Diagnostic criteria	
A	At least five episodes fulfilling criteria C and D
B	A current or past history of 1.1 Migraine without aura or 1.2 Migraine with aura ¹
C	Vestibular symptoms of moderate or severe intensity, lasting between 5 minutes and 72 hours ⁴
D	At least 50% of episodes are associated with at least one of the following three migrainous features:
1	Headache with at least two of the following four characteristics: a) unilateral location b) pulsating quality c) moderate or severe intensity d) aggravation by routine physical activity
2	Photophobia and phonophobia
3	Visual aura
E	Not better accounted for by another ICHD-3 diagnosis or by another vestibular disorder

Table 2- International Classification of Headache Disorders classification of diagnostic criteria of VM

Clinical features that are most important in diagnosing VM. History is the key to accurate diagnosis. Symptoms that arise suspicion are severe disabling headache, nausea, vomiting, photophobia and phonophobia in addition to vertigo. According to a 2005 study, 70% Acute vestibular migraine episodes had positional nystagmus, unsteadiness, and gait disturbances¹¹.

Additional pointers that may be important are as follows:

1. Motion sickness

In a study of 131 migraineurs and 50 control group, motion sickness was significantly more prevalent in migraineurs than the control (89% vs 45%) and even among them when vestibular migraine was present³. In another study by Kayan et al, 50% migraine population has reported motion sickness⁷.

2. Vestibular March Childhood balance disorders tend to take a step wise progression approach. Starting from benign paroxysmal torticollis of childhood (BPTC), moving on to benign paroxysmal vertigo of childhood (BPVC), to vestibular migraine in the adulthood⁸.

3. Three item ID-Migraine questionnaire

In diagnosing migraine questionnaires are important^{3,9}. However, they should not be very time consuming for obvious reasons. ID-migraine questionnaire study found three item questionnaires of 1. disability 2. nausea 3. light sensitivity to be 81% sensitive and 75% specific for the diagnosis of migraine as judged by IHC criteria¹⁰.

4. Phonophobia, Osmophobia, Photophobia and Allodynia

5. Absence of Auditory symptoms

6. Triggers

There may be a strong history suggestive of specific triggers such as precipitated by menstruation, lack of sleep, skipped meals, stress and loud noises and bright lights¹.

Differential diagnosis

The main differential diagnosis is Meniere's disease. In Meniere's disease, additionally present hearing loss and post ictal features are suggestive. Being an otological condition, aura of Meniere's disease is associated with ear symptoms like aural fullness and tinnitus as opposed to VM where predominant symptoms are neurological e.g headache, brain fog, photophobia, phonophobia and osmophobia.

Other important diagnoses to consider in the differential are Benign paroxysmal positional vertigo (BPPV), Vertebrobasilar transient ischaemic attacks and Psychogenic vertigo².

Investigations

Vestibular migraine is a clinical diagnosis. However, there are well known changes in audio vestibular changes in vestibular migraine patients.

1. Loudness Discomfort Levels are reduced
2. Hyper responsiveness of frequencies to audiometry
3. C - VEMP abnormalities suggestive of Saccular dysfunction
4. ABR latencies
5. Smooth pursuit deficits in vestibular testing
6. Spontaneous nystagmus and or central positional gaze evoked nystagmus in vestibular testing

Management options

Vestibular migraine management is a stepwise process with multiple modalities.

The first line is trigger management and nutraceuticals according to many studies¹. Individual triggers such as excessive sun exposure, skipped meals or lack of sleep can be advised to be avoided. As migraine thrives with inconsistency, a regular daily routine is prescribed including during weekends with an emphasis on diet and sleep. Hyper stimulation of the nervous system should be avoided by way of reducing caffeine, chocolates and aged cheese. Tyramine content is suspected to be a trigger. Monosodium glutamate (MSG), artificial sweeteners and processed meats are other substances that are thought to be better avoided.

Nutraceuticals have been used in initial management of vestibular migraine. Eg Magnesium riboflavin coenzyme Q10¹. However, there is no evidence that they are useful in VM.

Dietary Management

MSG Caffeine Chocolates artificial sweeteners processed meats alcohol aged cheese are the usual food items asked to omit by migraineurs. Like nutraceuticals this has been translated to VM management despite no randomized clinical trials for their effectiveness specifically in VM¹².

Screen time

A study conducted by, Attygalle et al in 2020 showed a significant proportion of patients with migraine had a longer screen time. Considering the pathophysiological basis of the vestibular migraine, it is reasonable to assume that reducing the screen exposure time is an important aspect in prevention of attacks¹³.

Contraceptive pills

European position paper on exogenous hormones (oestrogen and progesterone variants) have concluded that there is only weak scientific evidence to provide solid conclusions on their use in migraineurs¹⁴.

Medications

Prophylactic medications include betablockers (Propranolol, Bisoprolol and Metoprolol) calcium channel blockers (Verapamil, Amlodipine, Flunarizine, Cinnarizine), antiepileptic drugs (Valproic acid, Lamotrigine) and tricyclic antidepressants (Amitriptyline, Nortriptyline). Superiority of one class of drugs over the others is not clear and there may be individual factors that affect the usefulness in a particular patient. Usefulness of a particular drug is assessed using symptom and disability questionnaires. A meta-analysis by Jackson et al showed the largest benefit was by amitriptyline¹⁵. Beta blockers are commonly used for migraine prevention however, there is evidence that metoprolol may not be effective¹⁶.

The mainstay of abortive management is the 5HT receptor agonists. Almotriptan, Zolmitriptan, Sumatriptan are examples of this drug class.

Additionally, for prolonged acute episodes, antiemetics may be useful as well as symptomatic management of headache and vertigo.

Role of VRT

Current evidence does not support recommending VRT in VM patients¹⁷.

Prognosis

A 9-year follow-up showed that 90% of patients were still symptomatic at the end of the observed period. Frequency of the episodes and the severity however had been reduced².

Summary of findings

1. Using of the 3 item ID-Migraine questionnaire increases sensitivity.
2. There is no RCT evidence that Nutraceuticals usage, restriction of MSG Caffeine Chocolates, artificial sweeteners, processed meats, alcohol and aged cheese are useful in management VM.
3. Although beta blockers are used as prophylaxis, metoprolol may not be effective.
4. The mainstay of abortive management is 5HT receptor agonists.

Recommendations

1. It is necessary to raise the awareness of the diagnostic entity and necessary training and education should be given to the care givers.
2. Future research is necessary to identify therapeutic agents specifically to be effective in this condition

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