

Vestibular Migraine

Vestibüler Migren

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ABSTRACT

The co-occurrence between migraine and vertigo has been noticed for a long time ago. In recent years, however, growing numbers of epidemiological and clinical studies have definitely shown the significant relation between these two diseases. Recently, the term "vestibular migraine" is used commonly in studies. Vestibular migraine has taken place in appendix in the latest International Headache Society Classification. In this review, epidemiology, clinical features, diagnostic criteria and treatment of vesti-bular migraine will be discussed. (*Archives of Neuropsychiatry 2012; 49: 56-59*)

Key words: Vestibular migraine, vertigo, migraine, migraine with aura

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ÖZET

Migren ve vertigo birlikteliği uzun zamandır bilinmektedir. Ancak son yıllarda artan sayıda klinik ve epidemiyolojik çalışmada migren ve vertigo arasındaki anlamlı bağlantı net olarak gösterilmiştir. Vestibüler migren adı çalışmalarda ortak olarak kullanılmaya başlamıştır. Uluslararası baş ağrısı sınıflamasında appendikte yer almıştır. Bu derlemede vestibüler migrenin epidemiyolojisi, klinik özellikleri, tanı kriterleri ve tedavisinden bahsedilecektir. (*Nöropsikiyatri Arşivi 2012; 49: 56-59*)

Anahtar kelimeler: Vestibüler migren, vertigo, migren, auralı migren

Çıkar çatışması: Yazarlar bu makale ile ilgili olarak herhangi bir çıkar çatışması bildirmemişlerdir

Introduction

Living pointed out the association of recurrent vertigo attacks and migraine in the 19th century. The subject came to the fore again after publication of the article of Kayan and Hood titled "neuro-otological symptoms of migraine" (1). In this study, it was reported that neuro-otological disorders accompanied migraine in 77% of the patients with migraine (1). The association of migraine and vertigo was emphasized in the following studies (2, 3). There were also clues about the linkage between migraine and vertigo before the studies pointing out the association of migraine and vertigo. Benign paroxysmal vertigo of childhood and benign recurrent vertigo of adults are well-known equivalents of migraine. Benign paroxysmal vertigo of childhood is a picture characterized with imbalance attacks, anxiety and frequently nistagmus and vomiting (4). It is observed in healthy children as a recurrent picture. It was shown that migraine developed in these children after vertigo attacks ended (5). When compared with controls, migraine is observed with a 2-fold higher frequency in the first-degree relatives of these children (6). Benign recurrent vertigo of adults is triggered with sleeplessness and emotional stress and is observed

more frequently in women. There is a history of migraine in these patients and their families. This disorder shows some common characteristics with migraine (7). In fact, this clinical picture can be considered vestibular migraine in the light of our new information.

Recent epidemiological studies have shown that the association of migraine and vertigo is not accidental (8). Although clinical and epidemiological studies have shown the association of migraine and vertigo undoubtedly, it has not been included in the classification of headache until recently, since it has not attracted the attention of the International Headache Society. As a result of the explosion of publications on this subject in the last ten years, it has been included in the appendix of the classification published recently (9). One of the reasons of this is the fact that migraine patients with dizziness are examined by neurologists, neuro-otologists of otolaryngology origin, emergency physicians and general practitioners and there is failure of evaluation of these patients for the complaints of vertigo and dizziness by the physicians who are interested in headache and migraine. Although different names including migraine-related dizziness (10,11), migraine-related vestibulopathy (12,13), vestibular migraine (3) and migraineous vertigo (14) were given to the association of migraine and vertigo, "vestibular migraine" has

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started to be used in recent years.

In epidemiological studies, the prevalence of migraine in the adult population has been found to be 16% (15) and the prevalence of vertigo has been found to be 7% (16). Accordingly, accidental association of migraine and vertigo is expected in 1.1% of the general population. In a study performed by Neuhauser et al. in 2001, 200 patients who presented to the orthopaedic outpatient clinic and 200 patients who presented to the vertigo outpatient clinic were examined in terms of migraine and headache and the prevalence of migraine was found to be 38% in the patients who presented to the vertigo outpatient clinic and 24% in the patients who presented to the orthopaedic outpatient clinic (14). In addition, the same investigators conducted a population-based study in 2006 and found the prevalence of vestibular migraine to be 1% and the prevalence of association of vestibular vertigo and migraine to be 3.2% (17). This result is 3-fold higher than expected. It was observed that 87% of 208 patients with recurrent vertigo of unknown origin met the diagnostic criteria of migraine and it was reported that 70% of these patients met the definite diagnostic criteria of vestibular migraine (18). In a similar group of patients including a smaller number of patients, the prevalence of migraine was found to be 6-fold higher compared to the control group (19). It was reported that two other vestibular diseases including benign paroxysmal positional vertigo (BPPV) and Menière's disease were epidemiologically related with migraine (20, 21). Diagnosis of vestibular migraine which has a prevalence of 1% and which leads to labour loss and loss of quality of life is considerably important. The investigators who conducted the above-mentioned epidemiological studies report that these conditions are recognized with a low rate even among physicians (8). In a patient presenting with a complaint of vertigo diagnosed with definite migraine or in a patient with headaches who has no diagnosis of migraine, vestibular migraine should be considered in the first order after BPPV which is the most common cause of vertigo is excluded. The diagnosis is made with the properties of history and exclusion of other causes. The definite and probable diagnostic criteria for vestibular migraine were proposed by Neuhauser et al and these criteria are being used frequently in studies (22).

Diagnostic criteria for definite vestibular migraine:

- 1- Recurrent moderate or severe vertigo attacks
- 2- A diagnosis of migraine according to the 2004 classification of the International Headache Society
- 3- Accompaniment of at least one of migraineous headache, photophobia, phonophobia, visual and other auras to at least two vertigo attacks
- 4- Exclusion of the causes which may lead to this picture by appropriate investigations.

Diagnostic criteria for probable vestibular migraine:

- 1- Recurrent moderate or severe vertigo attacks
- 2- Presence of at least one of the following:
 - a- A diagnosis of migraine according to the 2004 classification of the International Headache Society
 - b- Accompaniment of migraineous symptom to at least two vertigo attacks
 - c- Accompaniment of migraine triggers to more than 50% of vertigo attacks before attacks: certain foods, sleep irregularities, hormonal changes
 - d- Response to migraine treatment in more than 50% of the attacks

e- Exclusion of the causes which may lead to this picture by appropriate investigations.

The same investigators reached the same diagnosis in patients whom they followed up for a mean period of 9 years and reevaluated according to the diagnostic criteria they proposed and in a way, retested the diagnostic criteria (23). Afterwards, the Bárány Organization published a new classification together with the International Headache Society Migraine Classification Subcommittee (9).

Accordingly, for a diagnosis of vestibular migraine:

- A- Five moderate and severe attacks lasting for 5 minutes-72 hours accompanied by vestibular symptoms
- B- A diagnosis of migraine with or without aura according to the International Headache Society classification
- C- Accompaniment of one of the following to at least 50% of the attacks:
 - 1- Presence of headache meeting at least two of the following- unilateral localization, throbbing characteristic, moderate or severe pain, increase in severity with routine physical activity
 - 2- Photophobia and phonophobia
 - 3- Visual aura
- D- Absence of a more clear vestibular diagnosis or an international headache classification diagnosis.

For a probable diagnosis of vestibular migraine: B in addition to A above-presence of only one of B and C criteria above (history of migraine or migraine characteristics during attack) C- the same as C above.

In the new classification of headache of the International Headache Society, only "vestibular migraine" is included in the appendix and "probable vestibular migraine" is not included. If Bárány and IHS classification is compared with Neuhauser classification, 2 attacks are required for a definite diagnosis in Neuhauser classification, while 5 attacks are required in the new classification. This may be thought to have restricted the diagnostic criteria. However, it should be considered a success that it was included in the final headache classification.

The diagnosis can only be made after a well taken history. Vestibular migraine can be observed at any age. It is more frequent in women. In most patients, migraine starts firstly. In some patients, it may be observed even years after migraine attacks end (22). The patients typically describe spontaneous or positional vertigo. Intolerability to head movements is present. Recurrent imbalance triggered or worsened with head movements are additional findings indicating a vestibular problem (22). The time period of vertigo may last from seconds to hours or sometimes to days. In 10-30% of the patients, vertigo lasts for 5-60 minutes as in typical migraine aura (3, 14). Headache may accompany in some attacks and may not accompany in some others. In some patients, headache never accompanies vertigo (10, 14). Photophobia, phonophobia, visual and other auras may accompany vertigo (22). Vertigo and dizziness may also be triggered by complex visual moving stimuli (12). Hearing loss and tinnitus are not observed frequently in vestibular migraine, but some cases with hearing loss and tinnitus have been reported (3, 12).

It is considerably difficult to make the diagnosis in patients who do not have a definite diagnosis of migraine. In patients who present with a complaint of vertigo, a detailed history about the complaint of headache should absolutely be taken. In our country, migraine is not a well-known disease; the patients are

usually diagnosed with sinusitis. In each patient who presents to our balance outpatient clinic with vertigo and imbalance, we take a detailed history for headache. A positive familial history of migraine and a personal history of motion sickness are important clues in favour of migraine, because motion sickness is a very frequent complaint in individuals with a history of migraine (24). In cases where one can not know for certain that the patient has headache, the "migraine ID" test can be used safely for a diagnosis of migraine. (24). The reliability of the migraine ID test has been tested in different studies (26, 27).

In two posturography studies performed in patients who had no vertigo or imbalance, it was shown that these patients had an imbalance problem compared to healthy controls. When the same patients and controls were evaluated after a mean time of 1,5 years with the same test battery in a second study, it was shown that the present moderate imbalance was progressed (28, 29). Knowing which patients with migraine have the potential to develop vestibular migraine may give significant clues for planning the diagnosis and treatment of these patients. With this objective, patients with vertigo/dizziness or motion sickness were divided into two groups as the ones "with migraine with vestibular symptoms" and the ones "without migraine with vestibular symptoms" in a study and their clinical properties were examined. It was found that the patients with these complaints showed different clinical properties compared to the other group and it was proposed that "migraine with vestibular symptoms" could be a subgroup of migraine (30). Accordingly, patients with "migraine with vestibular symptoms" seem to have a younger age, migraine with aura, a longer history of migraine, a higher monthly frequency of headache, complain of phonophobia with a higher rate, are affected by menstrual and seasonal changes with a higher rate, have a history of allergy and sleep irregularity with a higher rate and had had cyclic vomiting and recurrent abdominal pain in the childhood with a significantly higher rate.

The pathophysiology of vestibular migraine is not clear. Detection of central vestibular nistagmus in the acute phase suggests central vestibular dysfunction (31, 32). It is not known how migraine affects the vestibular system. It has been tried to be explained with different hypotheses. Vasospasm of the internal auditory artery may explain peripheral vestibular and auditory findings, association of migraine, BPPV and Meniere's disease (33). Vertigo is the most common aura of basilar migraine and the clinical equivalent of extending depression (3). Extending depression has been thought to be the cause of short-term vertigo attacks in MV (3). Calcitonin gene-related peptide released during migraine attacks act on the peripheral and central vestibular structures and may lead to disruption in signal processing (10, 34). It has been proposed that ion channel disorders may be related with the pathophysiology of migraine. Migraine and vertigo are the most common complaints in familial hemiplegic migraine and episodic ataxia type 2 (EA2) which are paroxysmal disorders and the cause is mutation in the calcium gene (35). Channelopathy may explain central and peripheral vestibular dysfunction and seems to be the best model to explain vestibular migraine (31). However, studies examining mutations on candidate genes have given negative results (36, 37).

In a patient who presents with a complaint of vertigo and who has a definite diagnosis of migraine or in a patients who has headaches and no diagnosis of migraine, the diagnosis of vestibular

migraine should be considered after excluding BPPV which is the most common cause of vertigo. However, vestibular migraine may mimic non-vestibular psychiatric pictures where peripheral vestibular involvement (BPPV, Meniere's disease), central vestibular involvement and "dizziness" occur. The differential diagnosis of Meniere's disease and vestibular migraine may be difficult especially in patients in whom hearing loss is not prominent in the initial phase. Tinnitus and aural fullness may accompany vestibular migraine attacks, but this is generally bilateral; it is unilateral in Meniere's disease (12,38). Patients with unclear hearing loss should be followed up with audiometric examination during attacks and outside attacks. Publications indicating the relation between migraine and Meniere's disease have increased in recent years (21, 38, 39, 40). In a study which included 75 patients who were being followed up with a diagnosis of vestibular migraine, 10% of the patients were reported to meet both the definite diagnostic criteria of vestibular migraine and the diagnostic criteria of Meniere's diseases (23). Although vestibular migraine and EA2 share common and clinical characteristics including a familial history of recurrent vertigo attacks, EA2 is a rare autosomal dominant picture which generally starts below the age of 20 (41). A relation between vertigo, "dizziness" and migraine and some psychiatric disorders has also been demonstrated (42).

Patients with vestibular migraine may describe psychogenic "dizziness" attacks which may be caused by some environmental factors other than recurrent vertigo attacks.

There is no proven treatment option in vestibular migraine. Primarily, the frequency of migraine attacks should be decreased. It should be explained that migraine triggers should be avoided and when the frequency of headaches decreases, the vertigo and imbalance attacks will also decrease. The patient should be informed that anything triggering migraine attack would also trigger vertigo attacks and migraine triggers should be explained. Since the attacks affect the quality of life of patients in vestibular migraine, prophylaxis should be considered. However, all the drugs used have different side effects. In our outpatient clinic where we examine balance disorders, we primarily talk with our patients with vestibular migraine on potential attack triggers and decide on prophylaxis after evaluating vertigo and headache charts of the patients in the next visit. We observed that avoiding attack triggers (fasting, sleep irregularities, certain foods) and exercise controlled the attacks in many patients without a need for prophylaxis. If acute migraine attack lasts long (longer than 1-2 hours), short-term (2 days at most) dimenhydrinate may be used. Propranolol, metoprolol, tricyclic antidepressants, pizotifen, flunarizine, topiramate, valproic acid and lamotrigine which are used in prophylaxis of migraine have been reported to be efficient (43, 44). Appropriate prophylactic treatment should be decided together with the patient according to the life activity of the patient. In patients with a history of hypertension, propranolol may be selected primarily. In patients with sleep problems, tricyclic antidepressants may be preferred. It should be kept in mind that flunarizine may lead to movement disorders when used in patients above the age of 40 (45). Although it is recommended that triptans should not be used in basilar migraine, it has been proposed that triptans may be used in vestibular migraine (8). In a placebo-controlled randomized study, response to zolmitriptan was found with a rate of 38% and response to placebo was found with a rate of 22%, but these results were not found to be statistically significant (46). In patients with continuous "dizziness", vestibular rehabilitation is recommended (13).

In summary, vestibular migraine is a very common clinical picture. To make the diagnosis, it should be considered primarily. It should be considered in each patient who presents with vertigo, since it is the second most common cause of vertigo.

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