

EVALUATION OF TREATMENT OUTCOMES OF VESTIBULAR MIGRAINE PATIENTS

Abolfazl Atalu¹, Firouz Amani², Aran Nikpay³

Correspondence: firouz.amani@arums.ac.ir

¹Department of Neurology, School of Medicine, Ardabil University of Medical Science, Ardabil, Iran.

²Department of Community Medicine, School of Medicine, Ardabil University of Medical Science, Ardabil, Iran.

³School of Medicine, Ardabil University of Medical Science, Ardabil, Iran.

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ABSTRACT

Background: Currently there are several treatment plans for prophylaxis of vestibular migraine, but these treatments are based on physician's observations and there have not been studied on a consensual treatment plan.

Objective: Based on diagnostic criteria, we collected vestibular migraine patients and created an individualized treatment plan for 3 months to interpret treatment results.

Methods: In this prospective cross-sectional study, 28 patients with headache and dizziness diagnosed for vestibular migraine were enrolled. Demographics, clinical picture, and treatment results were evaluated for all patients at baseline and after three months follow-up duration. Collected data analyzed by statistical methods in SPSS.

Results: Due to results, all of the patients with vestibular migraine were female and mostly were in the 30 to 50 years old age group. Dizziness, Headache before vestibular symptoms, increased intensity of headache on excretion, intermediate to high migraine intensity, and throbbing pain were the most common symptoms in the patients. The most common drugs used in the treatment were somatriptan, topiramate and Magnesium+Vitamin B6. After 3 months of treatment, duration, intensity, and frequency of migraine and frequency of dizziness episodes were significantly decreased but there was not a significant relationship between treatment plan and dizziness episodes in terms of duration and intensity.

Conclusion: Effectiveness of the drugs in decreasing dizziness episodes can be explained by the effect of the drugs in preventing migraine episodes, whereas in recent studies non-pharmacologic treatments have had a significant effect on decreasing dizziness intensity and duration. Using both pharmacologic and non-pharmacologic methods in combination, is recommended for the treatment of the vestibular migraine.

Keywords: Vestibular migraine, dizziness, pharmacologic treatment

Introduction

Vestibular Migraine (VM) is a disease that has been paid a lot of attention in recent years and it can be considered as one of the common causes of dizziness in patients.¹ The idea that there can be a connection between migraine and dizziness has a history of about fifty years. Vestibular migraine was initially considered a part of basilar migraine and of course, for a short time a dizziness related symptoms were considered to be only a part of the migraine related auras, that these hypotheses were accepted for a short time. Today, most experts believe that vestibular migraine can show itself with very different symptoms in patients. In order to the importance of these two issues and of course the lack of flawless criteria in diagnosing vestibular migraine that is considered a challenge for all physicians especially neurologists and ENT specialists. It is mention that the lack of agreeable pathophysiology for migraine disease itself can double the value of research on vestibular

migraine.^{2,3} Today, the general concept of migraine is different from the old concept of its. The variety of symptoms in patients and the difficulty of diagnosing of it is much higher than before. In general, migraine can be a neurological phenomenon known for being associated with increased activity, sensitivity and dysfunction of the central nervous system. During migraine attacks, the brain becomes abnormally hypersensitive and responds inappropriately to environmental stimuli. These responses include headache, photophobia, phonophobia, which of course in vestibular migraine associated with increasing sensitivity with a series of vestibular symptoms including nystagmus, dizziness, imbalance, during seizures, they can remain stable in the intervals between attacks.^{4,5} The existence of vestibular symptoms can raise other common diseases that co-occur with migraine and cause symptoms. It is very important to consider all other differentiated diagnoses even with the criteria's defined in ICHD-III for the disease, the diagnosing of the disease is a challenge for

the physicians and this has prompted researchers to evaluate and test these criteria's.^{6,7} All of the above cases, showed the importance of the research into the diagnostic evaluation of migraine and dizziness.

The symptoms of dizziness and migraine are very similar and clinical studies have shown that migraine patients are three times more likely to experience dizziness than others. In patients referred with dizziness, 30 to 50 percent of them were known migraine cases.^{8,9} Statistical studies have shown that prevalence of migraine in women is 17% and in men is 6%, while 20% of the population experience dizziness.^{10,11} In totally prevalence of vestibular migraine in the population was 1%.¹² Due to the lack of a clear pathophysiology for vestibular migraine like migraine itself and lack of finding relation between headache and vestibular symptoms and of course different clinical manifestations, determining a special treatment plan for patients is hard. Recently, of course, a phenomenon called CSD (cortisol spreading depression), is considered responsible for the migraine auras and of course most likely for vestibular migraine that the discovery of this relationship in the treatment protocol due to the therapeutic effects of lamotrigine on CSD can be very helpful.¹³⁻¹⁶ Currently, there are various treatment programs for the prophylaxis of vestibular migraine in patients, but all of these treatments are based on experience of the relevant physicians and sufficient and appropriate research has not been done to develop a unique treatment. The aim of this study was to evaluate the treatment outcomes of vestibular migraine patients.

Methods

This prospective cross-sectional study was done on vestibular migraine patients referred to the neurology clinic of the Ardabil city's Alavi hospital carried out from March 2019 to March 2021. Patients with vestibular migraine were selected from all patients with complaints of headache or dizziness according to criteria (ICHD- III). Demographic and clinical findings and treatment outcomes were recorded in a checklist. Each of the patients underwent medication are recommended by a neurologist depending on their individual circumstances. The duration of dizziness, its frequency and intensity of headache was evaluated before starting a treatment and even after three month the treatment being started. Demographic data and clinical features of vestibular migraine was taken when the patient come to clinic and the results of the treatment was asked on phone three months after starting the prescribed medicine. This study was approved in the ethics committee of Ardabil University of medical sciences and registered by code IR.ARUMS.REC.1398.465. Normality of data were performed by using Kolmogorov-Smirnov and Wilk-Shapiro tests. In this study, all the studied variables had a normal distribution, and to examine the differences between the variables such as duration of migraine attacks, frequency and intensity of migraine attacks, number and intensity of migraine attacks before and after three months of treatment we used paired t-test. Significance level was less than 0.05 in all cases.

Results

In this study, 28 patients diagnosed with vestibular migraine were studied. Imaging and laboratory findings of all patients were normal. All of these patients were female and most of them were in the age group of 20 to 29. Most of them were housewives with 60.7%.

Type of vestibular episode in most cases with 15 cases (53.6 %) described as a false sense of movement of objects in the environment. In most patients (42.9%) start of headache attacks were preceded dizziness attacks. Exacerbation of migraine by physical activity during at least 50% of vestibular attacks was in 71.4% of patients (Table 1). Photophobia or Phonophobia with migraine in at least 50% of vestibular attack were seen in 82.1% of patients (Table 2).

According to Table 4, the severity of dizziness attacks was severe in 35.7% of patients before treatment that after the three months treatment period, this rate has reached to 25% which means that the treatment process can decrease the severity of the dizziness attacks.

Discussion

In the present study, all patients with vestibular migraine were female and were in the age group 20 to 29 years. In various studies, this disease has been reported more in women, but in our study percentage of women who had migraine related dizziness was more than lampert et al., as migraine associated dizziness or migraine dizziness is reported in about 1 to 7.2 percent of the population and according to the above study, female and the age group of over the 20 years were reported in most cases.¹⁷ In the present study, a family history of migraine was observed in only one patient, which indicates that heredity may play a small role in causing it, although in other studies such a positive history has not been reported.¹⁸ False sensation of movement of objects, headache prior to dizziness attacks, exacerbation of migraine by physical activity. Photophobia or phonophobia with migraine, moderate to severe migraine and pulsating migraine were the predominant clinical features of the patients in this study. According to previous studies migraine dizziness is often presented by symptoms of migraine like severe and pulsating headache, usually on one side of the head, nausea and vomiting and sensitivity to light, smell and sound⁵ which were seen generally in the patients of the present study. The most commonly used drugs in our study were sumatriptan, topiramate and magneb6; respectively. In previous studies, including the study of Bessdorf, Cheliker and Carmona, the drugs of lamotrigine, valproate and topiramate has been used with positive effects that in the present study, valproate and topiramate were among the prescribed drugs.¹⁹⁻²¹ Johnson et al., also implemented a multidrug protocol for the treatment of these patients.²² In this study after receiving three months of common migraine treatment in patients with vestibular migraine, the duration, intensity and numbers of migraine and dizziness attacks decreased significantly. However, the duration of dizziness attacks and the severity of it has not decreased significantly.

Table 1. Clinical variables in patients with migraine vestibular

| Clinical Variables | | n | % |
|---|--|----|------|
| Vestibular Type | False sensation of one's own movement | 5 | 17.9 |
| | False sensation of movement in objects around | 15 | 53.6 |
| | Dizziness after changing the head position | 4 | 14.3 |
| | Dizziness after the movement of head | 1 | 3.6 |
| | Dizziness after the movement of head with nausea | 3 | 10.7 |
| Symptoms | First headache then dizziness | 12 | 42.9 |
| | First dizziness then headache | 6 | 21.4 |
| | Experiencing headache and dizziness attacks simultaneously | 9 | 32.1 |
| Exacerbation of migraine by physical activity during at least 50% percent of vestibular attacks | Without special order | 1 | 3.6 |
| | + | 20 | 71.4 |
| | - | 8 | 28.6 |

Table 2. Clinical variables in patients with migraine vestibular

| Clinical Variables | | n | % |
|--|---|----|------|
| Photophobia or phonophobia with migraine during at least 50% of the vestibular attacks | + | 23 | 82.1 |
| | - | 5 | 17.9 |
| Urabinia with migraine during at least 50 % of vestibular attacks | + | 4 | 14.3 |
| | - | 24 | 85.7 |
| Unilateral migraine during at least 50% of the vestibular attacks | + | 20 | 71.4 |
| | - | 8 | 26.6 |
| The pulsating nature of migraines for at least 50 percent off vestibular attacks | + | 24 | 85.7 |
| | - | 4 | 14.3 |
| Moderate to severe migraine during at least 50% of the vestibular attacks | + | 26 | 92.9 |
| | - | 2 | 7.1 |

Table 3. Characteristics of headache and dizziness attacks before and 3 months after treatment

| Variables | | mean | SD | p-value |
|------------------------------------|--------------------------|-------|-------|---------|
| Duration of migraine attack(hour) | Before treatment | 17.25 | 27.76 | 0.003 |
| | After 3 months treatment | 3.73 | 9.38 | |
| Number of attacks in month | Before treatment | 13.57 | 10.34 | 0.001 |
| | After 3 months treatment | 4.39 | 3.67 | |
| Severity of headache attacks | Before treatment | 7.39 | 2.24 | 0.001 |
| | After 3 months treatment | 4.25 | 2.53 | |
| Duration of vertigo attacks (hour) | Before treatment | 3.69 | 9.83 | 0.087 |
| | After 3 months treatment | 0.45 | 0.69 | |
| Number of vertigo attacks in month | Before treatment | 10.03 | 8.85 | 0.002 |
| | After 3 months treatment | 4.96 | 7.25 | |

Table 4. Intensity of dizziness attacks before and 3 months after the treatment

| Time of Study | | n | % |
|-----------------------------|----------------------|----|------|
| Before treatment | Doesn't have or mild | 8 | 28.6 |
| | Average | 10 | 35.7 |
| | Severe | 10 | 35.7 |
| After 3 months of treatment | Doesn't have or mild | 10 | 35.7 |
| | Average | 11 | 39.3 |
| | Severe | 7 | 25 |

The ineffectiveness of these drugs in reducing the intensity of dizziness attacks has been reported in another study. In this open-label study, therapeutic effect of topiramate in two doses of 100, 50 mg/day on 30 cases with a diagnosis of migraine dizziness was assessed. In this study patients were divided into two groups of 15 patients. In a group at a dose of 50 mg/day, 14 patients reported improvement in vestibular symptoms and 6 of them mentioned complete elimination of all symptoms and only one case did not mention any improvement. In second group, who was treated with 100 mg/day, 12 of them reported improvements in vestibular symptoms and three of them did not mention any improvement. Finally, there was not a

significant difference between the effects of drugs on reducing the severity of attacks.²³ Non-drug therapy have had good results in reducing the severity of dizziness attacks. For example, in one study, Bayer et al., studied the effects of various prophylaxis methods on the 100 known cases of vestibular migraine choosing the type of prophylaxis treatment was accidentally to the individual characteristics of the patients and a series of algorithms. 74 patients underwent drug treatment and another 26 under special diet, lifestyle changes physiotherapy and muscle relaxation exercises. In all patients undergoing drug treatment, length reduction of dizziness attacks, intensity of attacks and frequency of attacks were reported. In a group

of 26 people undergoing conservative treatment only the severity of attacks had reduced.²⁴ Effects of drugs used to reduce the frequency of dizziness attacks, were justifiable due to prevention of reoccurrence of vertigo attacks but in order to studies have shown the effects of non-drug therapies in reducing the severity and duration of dizziness attacks, using the combination of pharmacological and non pharmacological therapies is recommended as the best treatment for vestibular migraine.

Conclusion

Vestibular migraine, most of the time affects women in the age group of 30 to 50. False feeling of moving objects, headache preceding dizziness attacks, exacerbation of migraine by physical activity, photophobia or phonophobia associated with migraine, vestibular migraine, moderate to severe migraine and pulsating nature of migraine were predominant clinical features in patients with vestibular migraine. The most commonly prescribed drugs for these patients in the clinic were respectively Sumatriptan, Topiramate and Magnesium+Vitamin B6. A month of common migraine treatment significantly reduces the duration of dizziness attack and the severity of dizziness attack, the number of migraines attacks the number of dizziness attacks. The duration of dizziness attacks and the severity of dizziness attacks does not decrease significantly. It is suggested that the effects of common migraine treatments as well as traditional medicines on vestibular migraine and the effects of pharmacological and pharmacological therapies combined together in the treatments of vestibular migraine should be measured and similar studies with wider statistical population should be conducted in the future.

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Conflict of Interest

None.

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