Impact of Qihuang needle therapy combined with flunarizine hydrochloride for vertigo in vestibular migraine

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ABSTRACT

الأهداف: لتقييم تأثير QHN مع FH مقابل FH أحادي العلاج على الصداع النصفي الدهليزي (VM).

المنهجية: شملت الدراسة مرضى عولجوا من VM إما باستخدام QHN+FH أو FH وحده بين سبتمبر 2022 وسبتمبر 2023 في المستشفى التابع الأول لجامعة قوانغدونغ للأدوية في قوانغتشو بمقاطعة قوانغدونغ بالصين. كانت النتيجة الأساسية هي تغيير جرد إعاقة الدوخة (DHI) قبل وبعد 8 أسابيع من العلاج. وشملت النتائج الثانوية تغييرات في نتائج اختبار نبضات رأس الفيديو (v–HIT) قبل وبعد 8 أسابيع من العلاج، وتكرار نوبات الدوار في 4 و8 أسابيع بعد العلاج.

النتائج: شملت هذه الدراسة 59 مريضًا، تلقى 29 منهم علاج QHN + FH وتلقى 30 منهم علاج FH أحاديًا. أظهرت كل من مجموعتي QHN+FH و FH انخفاضًا كبيرًا في درجات DHI قبل وبعد العلاج. بعد العلاج، أظهرت مجموعة QHN+FH تحسنًا في v–HIT 0.74±0.14 مقابل 0.64±0.14، قيمة (p<0.05)، بينما لم تُظهر مجموعة FH أي تغيرات ملحوظة. بعد 4 أسابيع، كان معدل تكرار الدوار في مجموعة QHN+FH أقل منه في مجموعة FH 13.79% مقابل 43.33%، وظل منخفضًا بعد 8 أسابيع (34.48% مقابل 53.33%).

الخلاصة: أشارت هذه الدراسة إلى أن استخدام QHN مع FH قد يكون له ميزة محتملة في تحسين نتائج العلاج وتقليل تكرار الدوار على المدى القصير لدى مرضى VM.

Objectives: To evaluate the impact of QHN combined with FH versus FH monotherapy on vestibular migraine (VM)

Methods: The study included patients treated for VM with either QHN+FH or FH alone between September 2022 and September 2023 at The First Affiliated Hospital of Guangdong Pharmaceutical University in Guangzhou, Guangdong Province, China. The primary outcome was the change of Dizziness Handicap Inventory (DHI) before and after 8 weeks of treatment. Secondary outcomes included changes in the Video Head Impulse Test (v-HIT) results before and after 8 weeks of treatment, and the recurrence of vertigo attacks at 4 and 8 weeks post-treatment.

Results: This study included 59 patients, with 29 receiving QHN+FH treatment and 30 receiving FH monotherapy. Both the QHN+FH and FH groups showed significant reductions in DHI scores before and after treatment. After treatment, the QHN+FH group demonstrated an improvement in v-HIT (0.74±0.14 vs. 0.64±0.14, p<0.05), while the FH group showed no significant changes. At 4 weeks, the recurrence rate of vertigo in the QHN+FH group was lower than that in the FH group (13.79% vs. 43.33%), and at 8 weeks, it remained lower (34.48% vs. 53.33%).

Conclusion: This study suggested that QHN combined with FH might had a potential advantage in improving treatment outcomes and reducing short-term recurrence of vertigo in VM patients.

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Vestibular migraine (VM) is a subtype of migraine characterized as balance disturbances, dizziness, headache, nausea, vomiting, and increased sensitivity to sound and light.[1] The debilitating nature of VM can significantly affect mental health, often resulting in

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anxiety and depression.[2] Moreover, VM adversely affects quality of life and daily functioning, contributing to sleep disturbances, heightened stress, and fear of social isolation triggered by vertigo episodes.[3] Consequently, there is an urgent need for effective treatments that can promptly manage symptoms at onset and reduce the duration of these episodes.

Currently, flunarizine hydrochloride (FH) is regarded as a first-line treatment for VM[4] and has demonstrated considerable efficacy in relieving symptoms, including headaches and dizziness.[4] However, monotherapy may present challenges, such as variability in individual treatment responses and drug side effects. Consequently, exploring multimodal treatment strategies is of significant importance, warranting further investigation.

Acupuncture has been proposed as a viable therapeutic option for certain patients with VM, providing potential for effective symptom management.[5,6] A comprehensive meta-analysis encompassing 22 trials and 4985 individuals with episodic migraines found that acupuncture reduced headache intensity by half in 41% of the participants, compared to only 17% in those who did not receive acupuncture.[5] Qihuang needle (QHN) therapy represents an innovative form of acupuncture, characterized by a distinctive needling technique that diverges from traditional practices. This method is recognized for its efficiency, delivering enhanced treatment effects in a substantially shorter duration. Consequently, patients benefit from rapid, comprehensive care with each session completed in just a few minutes. QHN therapy operates based on the principle of tendon differentiation and integrates modern anatomical principles to optimize acupoint selection.[7,8] It employs fewer acupoints compared to traditional methods, thereby improving both safety and therapeutic efficacy. Although a randomized controlled trial has confirmed the effectiveness of QHN in treating Parkinson's disease,[7] there is limited evidence supporting its application in VM.

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This retrospective observational study aimed to evaluate the efficacy of QHN combined with FH versus FH monotherapy in the treatment of VM symptoms, with the objective of providing valuable insights for clinical practice.

Methods. ***Study design and patient election.*** This retrospective observational study utilized medical records of patients diagnosed with VM who received treatment between September 2022 and September 2023 at The First Affiliated Hospital of Guangdong Pharmaceutical University in Guangzhou, Guangdong Province, China. The study adhered to the principles outlined in the Declaration of Helsinki (Version Edinburgh 2000) and received approval from the Hospital Ethics Committee of The First Affiliated Hospital, Guangdong Pharmaceutical University (Approval No. 2023-IIT-25-01). Due to the retrospective nature of the study, the ethics committee exempted the need for obtaining individual informed consent.

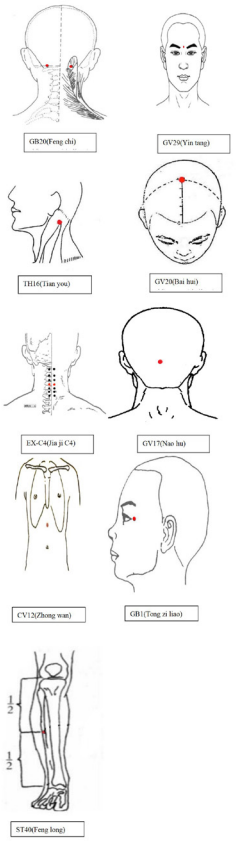

Figure 1 -The red dots indicate the points.

The inclusion criteria were patients who 1) were adults aged 20 to 75 years old, 2) experienced a minimum of four attacks within an 8-week period, 3) scored ≥30 on the Dizziness Handicap Inventory (DHI) scale, and 4) received treatment with QHN combined with FH or FH alone. The exclusion criteria were patients who 1) had incomplete medical data; 2) were suffering from severe hypertension, coronary heart disease, liver or kidney function insufficiency, or malignant tumors; 3) experienced vertigo attributed to other conditions, such as Meniere's disease, vestibular neuritis, benign paroxysmal positional vertigo, or posterior circulation ischemia; 4) had significant hearing impairment or tinnitus; or 5) presented with diplopia or blurred vision.

Treatments. The patients were treated with QHN and FH, or FH alone, following a comprehensive discussion with their treating physicians. During the treatment period, patients receiving FH monotherapy took 10 mg of FH orally once daily (qn) for two weeks. QHN was routinely performed using 40×0.5 mm needles with oval-shaped tips, were designed to minimize tissue damage during insertion and protect the defensive qi. These needles, characterized by their high hardness, facilitated a manual technique for the operator and promoted the smooth flow of meridian qi. The acupoints selected were based on the principles of Traditional Chinese Medicine (TCM) 6, 9: GB20 and GV29 were used for the first and fourth treatments, TH16 and GV20 for the second and fifth treatments, and EX-C4 and GV17 for the third and sixth treatments. Additional acupoints could be added at the therapist's discretion, depending on the patient's symptoms: CV12 (Zhongwan) for nausea or vomiting,

Table 1 - Located of the points.

Point	Located
GB20 (Feng chi)	In the posterior neck, sternocleine papillary muscle and trapezius, and the posterior earlobe neck depression
GV29 (Yin tang)	In human face, two brows line midpoint
TH16 (Tian you)	In the cervical side, the posterior edge of the sternocleidomastoid muscle, posterior at the mandibular angle
GV20 (Bai hui)	In the midline of the head intersects with the tip of two ears
EX-C4 (Jia ji C4)	0.5 inches under the process of the fourth cervical spine
GV17 (Nao hu)	In posterior head, the depression of upper margin of occipital tuberosity
GV12 (Zhong wan)	In the upper abdomen, at the midpoint of the line connecting the lower end of the sternum and the navel
ST40 (Feng long)	The midpoint of the line connecting the transverse crease of the thigh and the tip of the outer ankle is two transverse fingers from the anterior edge of the tibia
GB1 (Tong zi liao)	On the face, 0.5 inches depression outside the outer corner of the eye

Table 2 - Demographic and clinical features of patients with vestibular migraine.

Feature	QHN+FH group (n=29)	FH group (n=30)	P-value
Sex (male/female)	6/23	8/22	0.741
Age (years)	52.06±16.74	53.33±12.23	0.917
Vertigo attacks over 2 weeks (n)	3.34±1.07	3.33±1.02	0.335
DHI	52.00±12.42	56.40±11.24	0.159
Left horizontal canal	1.12±0.21	1.04±0.14	0.10
Right horizontal canal	1.08±0.22	1.06±0.14	0.76
Left anterior canal	0.64±0.14	0.68±0.22	0.41
Right posterior canal	0.91±0.22	0.90±0.25	0.84
Right anterior canal	0.72±0.15	0.71±0.23	0.96
Left posterior canal	0.73±0.23	0.69±0.18	0.49
Gain asymmetry of horizontal	4.43%±7.34%	3.72%±3.33%	0.631
Gain asymmetry of LA-RP	17.56%±10.47%	15.27%±12.92%	0.458
Gain asymmetry of RA-LP	9.81%±11.64%	13.91%±8.92%	0.133

QHN: Qihuang needle; FH: flunarizine hydrochloride; DHI: dizziness handicap inventory; LA-RP: left anterior, right posterior; RA-LP: right anterior, left posterior.

Table 3 - Comparison of DHI before and after treatment.

	Before	After	Difference	*P*-value
FH group	56.40 ± 11.24	31.00 ± 14.56	25.40 ± 11.13	0.00
QHN+FH group	52.00 ± 12.42	28.34 ± 15.73	23.66 ± 10.19	0.00

QHN: Qihuang needle; FH: flunarizine hydrochloride. *$P<0.05$ *vs.* before treatment within the same group.

Table 4 - Comparison of the vestibulo-ocular reflex gains in the six semicircular canals and the gain asymmetry of the conjugate plane before and after treatment.

Features	Before	After	*P*-value
QHN+FH			
Left horizontal canal	1.12±0.21	1.08±0.12	0.431
Right horizontal canal	1.08±0.22	1.07±0.16	0.982
Left anterior canal	0.64±0.14	0.74±0.14	0.009
Right posterior canal	0.91±0.22	0.90±0.18	0.825
Right anterior canal	0.72±0.15	0.72±0.13	0.873
Left posterior canal	0.73±0.23	0.74±0.20	0.924
Horizontal	4.43%±7.34%	3.05%±5.61%	0.424
LA-RP	17.56%±10.47%	11.57%±7.19%	0.014
RA-LP	9.81%±11.64%	7.84%±9.64%	0.485
FH			
Left horizontal canal	1.04±0.14	1.02±0.09	0.672
Right horizontal canal	1.06±0.14	1.05±0.10	0.666
Left anterior canal	0.68±0.22	0.69±0.18	0.856
Right posterior canal	0.90±0.25	0.86±0.20	0.509
Right anterior canal	0.71±0.23	0.70±0.17	0.716
Left posterior canal	0.69±0.18	0.67±0.16	0.577
Horizontal	3.72%±3.33%	3.85%±3.47%	0.878
LA-RP	15.27%±12.92%	11.51%±10.12%	0.215
RA-LP	13.91%±8.92%	10.60%±7.26%	0.120

QHN: Qihuang needle; FH: flunarizine hydrochloride; LA-RP: left anterior, right posterior; RA-LP: right anterior, left posterior

ST40 (Fenglong) for phlegm, and GB1 (Tongziliao) for photophobia. The location of the points is shown in **Table 1** and **Figure 1**.

To begin the Acupuncture Operation Method, fully expose the selected acupoints and disinfect both the operator's hands and the acupoints using a 75% alcohol cotton ball. Retrieve the acupuncture needle (QHN), position the index finger adjacent to the acupoint, and insert the needle along the index finger into the skin, advancing it into the underlying muscles. Apply the "join valley needling" technique for approximately 10 seconds until the patient experiences the Deqi sensation. Afterward, withdraw the needle and apply pressure to the puncture site for 30 seconds.

Outcomes and data collection. The primary outcome was the change in DHI scores from baseline to after 8 weeks of treatment. The DHI is a widely accepted questionnaire for VM.10, 11 It assesses the impact of vertigo through a comprehensive evaluation consisting of 25 questions, which are designed to gauge the severity and frequency of symptoms experienced by affected individuals. Patients received a score of 0 if they reported no symptoms; a score of 2 for moderate, occasional, or mild symptoms; and a score of 4 for persistent and severe symptoms. Scores of 0–30 indicate mild impairment, 30–60 moderate impairment, and >60 serious impairment, for which fall prevention is required.

Secondary outcomes included changes in v-HIT after 8 weeks of treatment, the recurrence rate of vertigo attacks at 4 and 8 weeks post-treatment. The vHIT evaluates the high-frequency characteristics of the vestibulo-ocular reflex (VOR) and simultaneously assesses the function of both the horizontal and vertical

Table 5 - Follow-up results.

Features	Week 4 after treatment	Week 8 after treatment
	QHN+FH /FH (4/13)	QHN+FH /FH (10/16)
Number of vertigo attacks		
1 attack	2/3	4/4
2 attacks	0/5	3/6
3 attacks	1/2	2/3
4 attacks	1/3	1/3
Last of vertigo attacks		
Last seconds	1/2	3/4
Last minutes	1/4	2/5
≤24 hours	1/3	3/3
>24 hours	1/4	2/4

QHN: Qihuang needle; FH: flunarizine hydrochloride

semicircular canals. During the study period, v-HIT was measured using the ICS® Head Shaking Tester (Natus Medical Inc., Shanghai, China). Data from all six canals were documented, and the gain asymmetry of the three planes of the semicircular canals was calculated.[12,13] A gain of the lateral semicircular canal <0.8 and a gain of the vertical semicircular canal <0.7 indicated a reduction in gain, reflecting decreased high-frequency function of the semicircular canal12 Other recorded variables, including gender and age, were collected from the case records.

Statistical analysis. Categorical variables were presented as frequencies (n, %) and analyzed using the chi-squared test. Continuous variables were assessed for normality with the Shapiro–Wilk test. Normally distributed continuous variables were expressed as means±standard deviations. For the comparison of outcome within and between groups, a paired sample and independent t-test were applied. Non-normally distributed continuous variables were presented as medians (range) and analyzed using the Mann–Whitney U-test. Statistical analysis was conducted using SPSS 23.0 (IBM, Armonk, NY, USA). *P*-values < 0.05 were considered statistically significant.

Results. The study included 59 patients, with 29 receiving both QHN and FH, while 30 receiving FH alone. As indicated in **Table 2**, there were no significant differences between the two groups regarding age, sex, DHI scores, and v-HIT values before treatment (all $p>0.05$). Additionally, prior to treatment, no significant differences were observed between the two groups in the VOR gains for the six semicircular canals (all $p>0.05$) or in the gain asymmetry of the planes tested (all $p>0.05$).

After treatment, the DHI scores decreased in both groups compared to the pretreatment values (**Table 3**). In the QHN+FH group, the left anterior canal gains and the gain asymmetry of its conjugate plane improved significantly after treatment (**Tables 4**). In contrast, no improvements in gain were observed in the FH group post-treatment (**Table 4**). The gain asymmetry of conjugate planes decreased after treatment but was not statistically significant (**Table 4**).

Follow-up results. The follow-up results showed that 4 weeks after treatment, four patients (13.79%) in the QHN+FH group experienced vertigo attacks, with this number increasing to 10 patients (34.48%) at 8 weeks. In contrast, the FH group, reported that 13 patients (43.33%) had vertigo attacks 4 weeks post-treatment, which rose to 16 patients (53.33%) at 8 weeks. The frequency and duration of vertigo attacks are detailed in the accompanying data (**Table 5**).

Discussion. The results showed that both FH monotherapy and the combination of FH with QHN led to improvements in DHI scores, effectively controlling VM episodes and mitigating their impact on daily life. Notably, the QHN-FH combination demonstrated superior efficacy compared to FH monotherapy, particularly in enhancing vHIT outcomes and reducing the recurrence of vertigo at both the 4-week and 8-week marks. These findings suggest that QHN combined with FH may provide significant advantages over FH alone in improving treatment outcomes and reducing short-term vertigo recurrence in VM patients. However, further studies are needed to validate these findings and conduct deeper comparative analyses.

Scholars of TCM classify VM under the category of "vertigo" in TCM, considering the head as the primary site of the condition. They attribute the onset of vertigo to pathogenic factors such as wind, fire, phlegm, stasis, and deficiency.[14] Meridians serve as conduits for the circulation of qi and blood in TCM. Disruptions in this circulation can lead to abnormal opening and closing of the lesser yang meridian, which acts as a pivotal mechanism. Consequently, Professor Zhen-Hu Chen's therapeutic approach primarily emphasizes dispelling wind, facilitating bowel movements, and enhancing the circulation of meridians and blood.

Post-treatment evaluations revealed improvements in the left anterior gains and the gain asymmetry of LA-RP in the QHN-FH group compared to pre-treatment levels. Additionally, it was observed that QHN-FH treatment exhibited a lower intensity compared to FH

alone. Further follow-up studies are underway to assess the recurrence rate and frequency of vertigo episodes.

From an integrative perspective combining traditional Chinese and Western medicine, the vestibular system in the inner ear, which is responsible for maintaining balance, functions as a peripheral receptor in the vestibular reflex pathway. Notably, both the Gallbladder meridian and Triple Energizer meridian connect to the ear, traversing and aligning with the primary treatment areas. Given the significant role of the Du meridian in the treatment of various nervous system disorders, we hypothesize that the therapeutic mechanism of QHN-FH in managing VM primarily involves its influence on the peripheral nervous system.[15] The DHI has established itself as the "gold standard" for dizziness assessment;[16] however, detecting subtle changes in patients using this scale can be challenging. This may explain why the QHN+FH group in this study showed more pronounced improvements in high-frequency vestibular function compared to the FH group, while the improvement in DHI scores was not as pronounced between the two groups. The vestibular rehabilitation benefit questionnaire is more sensitive in capturing the effects of vestibular rehabilitation therapy; however, its clinical application in China is relatively recent, and its usage remains limited.[17] Future studies should consider employing this scale for evaluation.

After treatment in the QHN+FH group, an increase in VOR gains was primarily observed in the left anterior canal, while the gain asymmetry in the conjugate LA-RP plane decreased. In contrast, no significant changes in gains were observed in the FH group. Some studies have suggested that the VOR gain of VM patients is lower than that of healthy groups;[18] however, compared to previous studies, the gains in this study were relatively lower,[19,20] which may be attributed to the smaller sample size. Notably, this study found that the gain in the left anterior canal was significantly lower than that in the other canals, aligning with existing research.[19] Some researchers suggest that the lower gain on the left side compared to the right may be related to the monocular analysis of the right eye,[20] though this may not be the sole contributing factor. Koc et al.[19] compared VOR gains between VM patients and healthy controls and found that, in the VM group, the left anterior canal gain was significantly lower than the right, while the left horizontal canal gain was higher than the right. However, this difference was not significant in the healthy control group. Due to the lack of multicenter, large-sample studies on VOR gains in VM patients, no consensus has yet been reached on this issue. Additionally, the v-HIT examination results may be influenced by the operator. In this study, all v-HIT examinations were conducted by a single operator, ensuring consistency and reliability in the comparison of data before and after treatment. Therefore, despite limitations in sample size and study design, the findings of this study are still valuable and provide important insights for further research.

Compared with oral FH alone, the combination of QHN and FH may provide a superior therapeutic regimen in the treatment of VM. Some studies showed that acupuncture can alleviate symptoms of VM,[21,22] and improve anxiety and depression.[23] Still, the effectiveness of acupuncture in preventing VM attacks remains inconclusive,[24] although a systematic review[25] and a randomized controlled trial[6] are currently underway to address this question. Of note, QHN is a special type of acupuncture that differs from classical acupuncture, allowing enhanced treatment effects in a significantly reduced timeframe due to variations in acupoint selection.[7,8]

Since most patients find it challenging to tolerate the caloric test of the semicircular canal, a systematic vestibular function assessment was not performed before treatment. Both the caloric test and v-HIT have limitations regarding test frequency, which may introduce bias when assessing the VOR through the semicircular canal in patients with VM. While one study suggested that v-HIT of the semicircular canal function is unaffected by aging,[26] age-related vestibular disorders in older participants remain challenging.

This study is subject to several limitations inherent to its retrospective observational design. Participants in retrospective studies may not accurately representative of the general population or the target group, as they are selected based on pre-existing data or outcomes. Furthermore, retrospective studies are susceptible to confounding, where unmeasured or unknown variables may affect both the exposure and the outcome, potentially leading to spurious or misleading associations. The lack of randomization in such designs makes it challenging to control for these confounders. Additionally, a significant limitation of this study is that treatment outcomes for vertigo in VM were assessed solely using the DHI and vHIT. Due to constraints in experimental conditions, we were unable to incorporate additional evaluation metrics, which may restrict the comprehensiveness of our findings.

In conclusion, this study suggests that QHN may serve as an adjunctive treatment for preventing the recurrence of VM. However, further research is necessary to elucidate the underlying mechanisms of VM and to confirm the effects of QHN.

References

1. Paz-Tamayo A, Perez-Carpena P, Lopez-Escamez JA. Systematic Review of Prevalence Studies and Familial Aggregation in Vestibular Migraine. ***Front Genet*** 2020; 11: 954.
2. Kim TS, Lee WH, Heo Y. Prevalence and Contributing Factors of Anxiety and Depression in Patients with Vestibular Migraine. Ear Nose ***Throat J*** 2024; 103: 305-312.
3. Silva VP, Castro LH, Calderaro M. Vestibular migraine. ***Arq Neuropsiquiatr*** 2022; 80: 232-237.
4. Rashid SM, Sumaria S, Koohi N, Arshad Q, Kaski D. Patient Experience of Flunarizine for Vestibular Migraine: Single Centre Observational Study. ***Brain Sci*** 2022; 12: 12.
5. Linde K, Allais G, Brinkhaus B, Fei Y, Mehring M, Vertosick EA, et al. Acupuncture for the prevention of episodic migraine. ***Cochrane Database Syst Rev*** 2016; 2016: CD001218.
6. Hu T, Hu H, Chen F, Jiang B, Shen F, Su Y, et al. The Efficacy and Safety of Acupuncture for Prophylaxis of Vestibular Migraine: A Study Protocol for a Randomized Controlled Trial. ***Front Neurol*** 2021; 12: 709803.
7. Li X, Zhou J, He R, Lian J, Jia J, Hsu C, et al. A study on the effects of the Qihuang Needle therapy on patients with Parkinson's disease. ***Front Neurol*** 2023; 13: 1022057.
8. Tang Y, Wu J, Xu Z, Fan B, Li X, Jin B, et al. Mechanism of Qihuang needle therapy in the management of tic disorders: a clinical trial protocol. ***Front Neurol*** 2023; 14: 1036453.
9. Xia Y, Sun J, Dai K, Sun F, Ren Z, Cheng B. Acupuncture for Residual Dizziness After Successful Repositioning Maneuvers in Patients with Benign Paroxysmal Positional Vertigo: Study Protocol for a Randomized Noninferiority Trial. ***Med Acupunct*** 2024; 36: 227-234.
10. Li Y, Shen Y, Cao Q, Cheng Y, Xu L, Tang Z. Effect of Interventional Therapy Unexplained Dizziness and Relationship Between Dizziness Handicap Inventory and Right-to-Left Shunt Grading. ***Int J Gen Med*** 2023; 16: 803-811.
11. Van De Wyngaerde KM, Lee MK, Jacobson GP, Pasupathy K, Romero-Brufau S, McCaslin DL. The Component Structure of the Dizziness Handicap Inventory (DHI): A Reappraisal. ***Otol Neurotol*** 2019; 40: 1217-1223.
12. Baek W, Jae Lee Y, Oh J, Cho SI, Nam GS. Assessing the Vestibulo-ocular Reflex of Contralesional Sides According to Head Impulse Velocity Utilizing the Video Head Impulse Test in Patients with Vestibular Neuritis. ***J Int Adv Otol*** 2024; 20: 236-240.
13. Gong W, He J, Fan K, Shi J, Jiang H. Clinical Observation of Video Head Pulse Test Combined with Caloric Test in Evaluating Semicircular Canal Function in Patients with Vestibular Migraine. ***J Audiol Speech Pathol*** 2023; 31: 122-125.
14. Liu M, Fan G, Zhang D, Zhu M, Zhang H. Study on Mechanism of Jiawei Chaiqin Wendan Decoction in Treatment of Vestibular Migraine Based on Network Pharmacology and Molecular Docking Technology. ***Evid Based Complement Alternat Med***. 2021; 2021: 5528403.
15. Xia KP, Pang J, Li SL, Zhang M, Li HL, Wang YJ. [Effect of electroacupuncture at governor vessel on learning-memory ability and serum level of APP, Aβ(1-42) in patients with Alzheimer's disease]. ***Zhongguo Zhenjiu*** 2020; 40: 375–378.
16. Zamyslowska-Szmytke E, Politanski P, Jozefowicz-Korczynska M. Dizziness Handicap Inventory in Clinical Evaluation of Dizzy Patients. ***Int J Environ Res Public Health*** 2021; 18: 18.
17. Gündüz B, Aydın Y, Güçlü Gündüz A, Kabiş B, Tutar H. Reliability and validity of the Turkish version of the vestibular rehabilitation benefit questionnaire. ***Turk J Med Sci*** 2021; 51: 796–8001.
18. ElSherif M, Reda MI, Saadallah H, Mourad M. Video head impulse test (vHIT) in migraine dizziness. ***J Otol*** 2018; 13: 65-67.
19. Koç A, Akkılıç EC. Evaluation of video head impulse test during vertiginous attack in vestibular migraine. ***Acta Otorhinolaryngol Ital*** 2022; 42: 281–286.
20. Weber KP, Aw ST, Todd MJ, McGarvie LA, Pratap S, Curthoys IS, et al. Inter-ocular differences of the horizontal vestibulo-ocular reflex during impulsive testing. ***Prog Brain Res*** 2008; 171: 195-198.
21. Yang J, Xiong J, Wang X, Yuan T, Fu Y, Jiang Y, et al. The effectiveness and safety of acupuncture for allergic rhinitis: protocol for an overview of systematic reviews and meta-analyses. ***Medicine (Baltimore)*** 2020; 99: e21225.
22. Xue Z, Liu CZ, Shi GX, Liu Y, Li ZX, Zhang ZH, et al. Efficacy and safety of acupuncture for chronic dizziness: study protocol for a randomized controlled trial. ***Trials*** 2013; 14: 429.
23. Smith CA, Armour M, Lee MS, Wang LQ, Hay PJ. Acupuncture for depression. ***Cochrane Database Syst Rev*** 2018; 3: CD004046.
24. Beh SC. Vestibular Migraine: How to Sort it Out and What to Do About it. ***J Neuroophthalmol*** 2019; 39: 208-219.
25. Hu T, Zhang A, Jiang B, Shen F, Hu J. Is acupuncture effective and safe for prophylaxis of vestibular migraine?: A protocol for systematic review and meta analysis. ***Medicine (Baltimore)*** 2020; 99: e23533.
26. McGarvie LA, MacDougall HG, Halmagyi GM, Burgess AM, Weber KP, Curthoys IS. The Video Head Impulse Test (vHIT) of Semicircular Canal Function - Age-Dependent Normative Values of VOR Gain in Healthy Subjects. ***Front Neurol*** 2015; 6: 154.