Clinical Study

Clinical observation on acupuncture at points of Shaoyang meridians plus moving cupping on the neck and shoulder for migraine

针刺少阳经穴联合颈肩部走罐治疗偏头痛的临床疗效观察

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Abstract

Objective: To observe the efficacy of acupuncture at points of Shaoyang meridians plus moving cupping on neck and shoulder for migraine.

Methods: A total of 64 migraine cases were randomly allocated into an observation group and a control group, 32 cases in each group. Random number table method was used in allocation. Acupuncture at points of Shaoyang meridians and cupping on neck and shoulder were used for cases in the observation group, which contain acupuncture 5 times a week and cupping once a week. Oral flunarizine hydrochloride capsules were used for cases in the control group, 10 mg for each dose, 1 dose a day. 2 weeks constitutes a course of treatment. The patients were treated for two courses of treatment in both groups. After that, the changes of visual analogue scale (VAS) and the migraine disability assessment questionnaire (MIDAS) were observed, as well as the clinical efficacy.

Results: The total effective rate and recovery and marked effective rate in the observation group were 93.8% and 71.0% respectively, versus 78.1% and 43.8% in the control group, showing statistical significant differences (both *P*<0.05). There were significant decreases in VAS and MIDAS scores after treatments in both groups (both *P*<0.05). VAS and MIDAS scores in the observation group were significantly different from those in the control group (both *P*<0.05).

Conclusion: Combining acupuncture at points of Shaoyang meridians and cupping on neck and shoulder can relieve headache and reduce influence of migraine on life. It can produce a better efficacy than oral flunarizine hydrochloride capsules in treating migraine patients.

Keywords: Acupuncture Therapy; Cupping Therapy; Moving Cupping Therapy; Migraine Disorders; Shaoyang Meridians; Visual Analogue Scale; Pain Measurement

【摘要】目的:观察针刺少阳经穴联合颈肩部走罐治疗偏头痛的临床疗效。方法:将64例患者按随机数字表法分为观察组和对照组,每组32例。观察组予针刺少阳经穴联合颈肩部走罐治疗,每星期针刺5次,走罐1次;对照组予口服盐酸氟桂利嗪胶囊,10 mg/次,1次/d。两组均以治疗2个星期为1个疗程,共治疗2个疗程。观察治疗前后视觉模拟量表(VAS)评分及偏头痛残疾程度评估问卷(MIDAS)评分,并比较临床疗效。结果:观察组的总有效率及愈显率分别为93.8%和71.9%,高于对照组的78.1%和43.8%,组间差异均有统计学意义(均P<0.05)。治疗后两组的VAS及MIDAS评分均下降,与本组治疗前差异有统计学意义(均P<0.05),两组间差异亦有统计学意义(均P<0.05)。结论:针刺少阳经穴联合颈肩部走罐治疗偏头痛疗效确切,能减轻患者疼痛,降低偏头痛对生活的影响,其疗效优于口服盐酸氟桂利嗪胶囊。

【关键词】针刺疗法;拔罐;走罐疗法;偏头痛;少阳经;视觉模拟量表;疼痛测评 【中图分类号】R246.6 【文献标志码】A

Migraine is a medical condition characterized by recurrent attacks of headache, usually combined with dysfunction, as well as photophobia, phonophobia, nausea and vomiting^[1]. The goal of treating migraine is to relieve or stop headache from happening, mitigate

symptoms and prevent relapse^[2]. Acupuncture has obvious effect in treating migraine without side effects^[3]. Moving cupping can eliminate pain and block the feeling of pain by circulating qi, activating and harmonizing the blood^[4]. We found that acupuncture at points of Shaoyang meridians plus moving cupping on neck and shoulder can unblock the meridians, resolve stasis and relieve pain. This method has a good therapeutic effect in treating migraine, and it is also

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based on clinical experiences. The report is now summarized as follows.

1 Clinical Materials

1.1 Diagnostic criteria

The diagnosis of migraine can be made according to following criteria in the 2nd edition of *International Classification of Headache Disorders* (ICHD-II) by the year 2004^[5].

1.1.1 Migraine without aura

1 Headache attacks lasting 4-72 h (without treatment or unsuccessful treatment); 2 headache is characterized by at least two of the followings: unilateral location, pulsating quality, moderate or severe pain intensity, aggravation by or causing avoidance of routine physical activities (such as walking or climbing stairs); 3 headache is accompanied by at least one of the followings: nausea and/or vomiting, photophobia and phonophobia. There are at least 5 attacks of headache which meet the criteria 1-3; headache is not attributable to another disorder.

1.1.2 Migraine with aura

① Migraine aura consisting of at least 1 of the followings, but no motor weakness: fully reversible visual symptoms including positive features (e.g., flickering lights, spots or lines) and/or negative features (i.e., visual field Loss); fully reversible abnormal sensory symptoms including positive features (i.e. acanthesthesia) and/or negative features (i.e. fully numbness); reversible dysphasic speech disturbance. (2) At least two of the followings: homonymous visual symptoms and/or unilateral sensory symptoms; at least one aura symptom develops gradually \geq 5 min and/or different aura symptoms occur in succession \geq 5 min; each symptom lasts 5-60 min. ③ Migraine without aura begins or follows aura within 60 min. There are at least 2 attacks of headache which meet the criteria (1)-(3); headache is not attributed to another disorder.

1.2 Inclusion criteria

Conforming to the above diagnostic criteria of migraine; age between 18 and 50 years old; no restriction for gender; the pain intensity was mild or moderate and migraine history was longer than 1 year, with the attack more than once a month; willing to participate in this trial and sign the informed consent.

1.3 Exclusion criteria

The patients who didn't meet the inclusion criteria; had severe primary angiocardiopathy, hepatopathy, nephropathy, digestive system diseases or mental diseases; headache attributed to other disease (e.g. hypertension, post-traumatic brain syndrome); pregnant or lactating women; special migraine, like ophthalmoplegia migraine and hemiplegic migraine; afraid of acupuncture or allergic to flunarizine hydrochloride; had taken orally drugs for migraine in the last 4 weeks.

1.4 Rejection criteria

The patients who did not meet the inclusion criteria but were included by mistake; bad compliance and failed to cooperate with treatment, examination, follow-up or changed treatment method privately; failed to follow the treatment or quit the research voluntarily; deteriorated migraine that may cause serious consequences; serious adverse effects or complications during treatment.

1.5 Statistical method

The data were processed using the SPSS 21.0 version software. Chi-square test was used for comparison of enumeration data, and the mean \pm standard deviation $(\overline{x} \pm s)$ was used to describe the measurement data in normal distribution. Paired sample *t*-test was used for intra-group comparison, and independent-sample *t*-test was carried out for inter-group comparison. Rank-sum test was used for non-normal distribution data and non-homogeneity variance. Rank-sum test was carried out for ranked data. A *P*-value of less than 0.05 indicated a statistical significance.

1.6 General data

A total of 64 subjects, admitted to Acupuncture and Tuina Department of Linxiang Hospital of Chinese Medicine, Hunan Province between April 2015 and April 2016 were enrolled. The 64 cases were randomly allocated into two groups by random number table. The age of patients in the observation group was between 19 and 56 years old while disease course was between 1 and 12 years. The age of patients in the control group was between 21 and 60 years old while disease course was between 1 and 13 years. There were no statistical differences in gender, age, duration and pain severity^[3] between the two groups (all P > 0.05), indicating that the two groups were comparable (Table 1).

Table 1.	Comparison	of general	information	between	the two groups
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Group		Gender (case)		Mean age	Mean duration	Severity (case)	
	<i>n</i> -	Male	Female	$(\overline{X}\pm s, year)$	$(\overline{X} \pm s, year)$	Mild	Moderate
Observation	32	15	17	37.3±9.5	5.8±1.7	12	20
Control	32	14	18	36.9±9.3	5.9±1.9	13	19

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2 Treatment Methods

2.1 Observation group

2.1.1 Acupuncture at points of Shaoyang meridians

Points: Sizhukong (TE 23), Shuaigu (GB 8), Waiguan (TE 5) and Zulinqi (GB 41) on the affected side.

Method: The patient took a supine position. Upon routine sterilization, disposable filiform needles of 0.32 mm in diameter and 25-50 mm in length were used for the above points. Punctured Sizhukong (TE 23) toward Shuaigu (GB 8) subcutaneously. Waiguan (TE 5) was perpendicularly punctured by 20 mm. Zulinqi (GB 41) was perpendicularly punctured by 15 mm. 1-minute even reinforcing-reducing manipulation was used after qi arrival for each point. The needles were retained for 20 min and re-manipulated every 10 min. The treatment was done once every day, 5 times a week at 2-day interval between two courses.

2.1.2 Moving cupping on the neck and shoulder

After acupuncture, the patient took a prone position to expose the neck and shoulder. After routine sterilization, vaseline was applied to the Gallbladder Meridian from Fengchi (GB 20) to acromial end. After the cup was sucked on the body, the practitioner immediately held and moved the cup along the meridian till the skin turned purplish red. Finally cupping massage was used at Jianjing (GB 21). Cupping treatment was done once a week.

2.2 Control group

Oral administration of flunarizine hydrochloride capsules (lot number: 141209004, produced by Xi'an

Janssen Pharmaceutical Ltd., specifications: 5 mg imes 20 capsules), 10 mg once a day before bedtime.

2-week treatments constituted a course of treatment. Patients in the two groups were treated for 2 courses. The clinical effect was evaluated 1 month after the treatment.

3 Therapeutic Efficacy Observation

3.1 Observation items

3.1.1 Visual analogue scale (VAS)^[6]

Using VAS to measure the severity of headache. The higher the score, the severer the headache.

3.1.2 Migraine disability assessment questionnaire (MIDAS)^[7]

Using MIDAS score to evaluate the affected level for patients' quality of life (QOL). The higher the score, the severer the influence.

Both items were evaluated before the treatment and 1 month after the treatment.

3.2 Criteria for clinical efficacy^[4]

According to the *Guiding Principles for Clinical Study* of New Chinese Medicines^[8], clinical effect was concluded by cardinal and concomitant symptoms score (Table 2).

Recovery: No migraine symptoms after treatment and no relapse in a month.

Marked effect: Score decreased by more than 50%. Improvement: Score decreased by 20% -50%. Failure: Score decreased by less than 20%.

 Table 2. Rating scales in cardinal and concomitant symptoms of migraine

Item	6 points	4 points	2 points			
Attack frequency	≥5 times/month	3-4 times/month	≤ 2 times/month			
Severity	Bed rest needed	Influencing work	Without influence on work			
Duration	>2 d	\geqslant 12 h, \leqslant 2 d	<12 h			
Accompanied symptoms	Photophobia, phonophobia, nausea and vomiting. 3 symptoms or above scored 3, 2 symptoms scored 2, and 1 symptom scored 1					

3.3 Treatment results

3.3.1 Between-group comparison of treatment effect

The total effective rate and the recovery and marked effective rate in the observation group were 93.8% and 71.9% respectively, versus 78.1% and 43.8% in the control group, showing statistical significant differences (both P < 0.05). Combining acupuncture at points of Shaoyang meridians and moving cupping on the neck and shoulder produced better curative effect for migraine than flunarizine hydrochloride (Table 3).

3.3.2 Comparisons of VAS and MIDAS scores

After treatment, the scores of VAS and MIDAS in both groups were significantly decreased (P < 0.05), but more significant in the observation group (P < 0.05). This indicates that both treatment methods can relieve headache and reduce the effect of migraine on life. Combining acupuncture at points of Shaoyang meridians and moving cupping on the neck and shoulder obtained better effect than oral administration of flunarizine hydrochloride capsules (Table 4).

Group n I	Recovery	Marked effect	Improvement	Failure	Total effective rate (%)	Recovery and marked effective rate (%)
Observation 32	9	14	7	2	93.8 ¹⁾	71.9 ¹⁾
Control 32	5	9	11	7	78.1	43.8

Table 3. Comparison of clinical efficacy between the two groups (case)

Note: Compared with the control group, 1) P<0.05

Group	n	Time	VAS	MIDAS
01	22	Before treatment	6.24±1.02	18.69±7.36
Observation	32	After treatment	$1.29{\pm}0.36^{1)2)}$	3.72±1.33 ¹⁾²⁾
C (1	32	Before treatment	6.31±1.07	17.55±6.88
Control		After treatment	$2.67{\pm}0.45^{1)}$	$6.46 \pm 2.25^{1)}$

Note: Intra-group comparison before and after treatment, 1) P<0.05; inter-group comparison after treatment, 2) P<0.05

4 Discussion

Migraine is a recurrent headache caused by neurovascular dysfunction. Epidemiological investigation report shows that the prevalence rate of migraine is 9.3%^[9]. The underlying causes of migraines are unknown. Since researches on biochemical, oxidative stress and gene factors are detailing the understanding of migraine, the new methodology is used in diagnosis and treatment^[10]. Currently, medication plays a leading role in migraine treatment, but they inevitably trigger adverse reactions such as gastrointestinal function impairment, bleeding and liver or kidney damage so as to bring physical and psychological trauma^[11]. Therefore, it is urgent to seek an effective treatment without side effects.

In traditional Chinese medicine (TCM), migraine falls under the category of headache or head wind. Bilateral sides of the head are on the pathways of Shaoyang meridians. According to the research of Qin Z, et al after collecting and summarizing the pain points of migraine, it showed that migraine is indeed associated with Shaoyang meridians. Yi Lin Gai Cuo (Correction of Errors in Medical Classics) indicates that activating blood and resolving stasis is an important method to treat recurrent and persistent headache. Therefore, based on the theory that diseases can be treated by located meridians, acupuncture at points of Shaoyang meridians was used for migraine, together with dredging the collaterals and activating blood method. Sizhukong (TE 23) and Shuaigu (GB 8) can unblock Shaoyang meridians and clear heat. They have certain therapeutic effect on migraine and can decrease brain blood flow, and relieve vasospasm^[13-14]. Waiguan (TE 5) is the Luo-Connecting point of the Triple Energizer Meridian. It can smooth three jiao and clear heat, and has a good effect on activating blood, regulating qi and relieving pain. Zulingi (GB 41) is the Shu-Stream point of Gallbladder Meridian. It can clear Shaoyang heat as well as unblock the meridians in head. This is one of treatment methods: to treat the upper diseases by the lower points. The two points can dispel wind, unblock collaterals, activate blood and relieve pain. The combination can also disperse the stagnated heat in Shaoyang and Jueyin meridians, and are widely used in clinic. These essential and effective points can unblock Shaoyang meridians, dispel wind, activate blood and relieve pain. Studies have found that acupuncture at specific points of Shaoyang meridians had obvious short- and long-term effect on migraine. The method can improve clinical symptoms, QOL and cerebral blood flow. One possible mechanism is that stimulating specific points of Shaoyang meridians can activate neuronal metabolism at periaqueductal gray (PAG). Thus, the abnormally reduced pain suppression function in PAG area was reversed^[15-17]. Moving cupping can dredge the collaterals, dispel cold and dampness, activate blood and move gi and disperse swelling and stop pain. So, cupping along Shaoyang meridians on shoulder can dredge the collaterals to resolve stasis. Jianjing (GB 21) is a crossing point of Triple Energizer Meridian and Gallbladder Meridian. Cupping massage here can dredge the adjacent collaterals and stimulate qi and blood. Another study indicated that moving cupping worked by mechanical and warm stimulation. Mechanical stimulation can adjust the brain state of excitement and inhibition, which enhance body's tolerance to pain. On the other hand, warm stimulation would promote adjacent blood circulation, and accelerate metabolism. Furthermore, it can increase the supply of nutrients, remove metabolites, improve bone condition, enhance anti-injury ability and eliminate inflammation^[18].

VAS score is commonly usee in measuring pain^[19]. Results showed that VAS scores in both groups significantly decreased than pre-treatment time (P < 0.05) and the observation group was better than the control group (P < 0.05). It meant that combining acupuncture at points of Shaoyang meridians and moving cupping on the neck and shoulder obtained better effect than oral administration of flunarizine hydrochloride capsules in relieving pain. MIDAS score is an effective tool for evaluating migraine patient's QOL. The questionnaire has good retest reliability, internal consistency reliability and validity and has high correlation with headache diary and clinician's judgement^[20]. The results showed that MIDAS scores in

both groups significantly decreased than pre-treatment time (P < 0.05) and the observation group was better than the control group (P < 0.05), which meant that combining acupuncture at points of Shaoyang meridians and moving cupping on the neck and shoulder obtained better effect than oral administration of flunarizine hydrochloride capsules in reducing migraine impact on patient's QOL.

The total effective rate and recovery and marked effective rate in the observation group were significantly higher than those in the control group (P<0.05). There were significant decreases in VAS and MIDAS scores after treatment in both groups (all P<0.05).

In conclusion, stimulating points can dredge the meridians and smooth qi and blood; moving cupping can dispel stasis and free the collaterals. The combination of the two methods has a better therapeutic effect on relieving pain.

Conflict of Interest

The authors declared that there was no potential conflict of interest in this article.

Statement of Informed Consent

Informed consent was obtained from all individuals in this study.

Received: 15 April 2017/Accepted: 14 May 2017

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