

Original Article

Therapeutic effect of modified cervical Jiaji acupuncture on mixed type cervical spondylosis

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Abstract: Objectives: To observe the clinical efficacy of modified cervical Jiaji acupuncture in the treatment of mixed cervical spondylosis (MCS). Methods: In this retrospective study, 120 patients with MCS who were treated in Yongchuan Hospital, Affiliated with Chongqing Medical University, from May 2020 to May 2023, were selected as the study subjects. According to the treatment methods, 52 patients who were treated with ordinary seat traction, tendon manipulation and ironing from January 2020 to December 2021 were grouped as the traditional treatment group. From January 2022 to December 2023, 68 patients who were treated with acupuncture at cervical Jiaji points formed the acupuncture group. Cervical Jiaji points (EX-B2) are located on both sides of the spinous process from the first to the seventh cervical vertebra, 0.5 inch lateral to the posterior median line, with 7 points on one side, and a total of 14 points. The patients were in a prone position and the points were treated using direct needling with filiform needle and reinforcing-reducing manipulation. Both groups were treated for 2 weeks. The pain, pain intensity, pain improvement quality, blood flow improvement, cervical spine mobility, cervical spine function and clinical efficacy of the two groups before and after treatment were compared. Results: After treatment, the pain rating index (PRI) score, present pain intensity (PPI) score and visual analogue scale (VAS) score of the two groups all decreased, with those in the acupuncture group decreasing more substantially than that in the traditional treatment group (all $P < 0.05$). The mean blood flow velocity (Vm) in the right vertebral artery, left vertebral artery and basilar artery in the acupuncture group were significantly higher than in the traditional treatment group (all $P < 0.05$). The right-handed, left-handed, posterior, anteflexion, left-flexion and right-flexion activities of the acupuncture group were better than in the traditional treatment group (all $P < 0.05$), and the neck disability index (NDI) score and clinical assessment scale for cervical spondylosis (CASCS) scores of in the acupuncture group were better than the traditional treatment group (all $P < 0.05$). After therapy, the total effective rate of the acupuncture group was 86.67%, which was significantly higher than 71.67% in the traditional treatment group ($P < 0.05$). Conclusion: Modified cervical Jiaji acupuncture is effective in treating MCS. It can improve the clinical symptoms, cervical spine function and cervical spine mobility, and reduce the intensity of pain.

Keywords: Acupuncture, cervical Jiaji points, cervical spondylosis, clinical effect

Introduction

Cervical spondylosis (CS) is characterized by degenerative pathological changes in the cervical spine, commonly attributed to long-term strain, hyperosteoegeny, and intervertebral disc prolapse etc. [1]. Finally, the cervical spinal cord and nerve root are compressed, resulting in cervical dysfunction [2]. In traditional Chinese medicine (TCM), it is referred as “arthralgia”, and the common symptoms include neck pain, muscle stiffness, limb numbness, limited lateral movement of the cervical spine, dizziness,

fatigue and walking instability. The patients can be affected from head to foot, often in a mixed manner [3]. Although CS predominantly affects middle-aged and elderly people, its prevalence is increasingly noted among younger populations due to the widespread use of mobile phones, computers and air-conditioning equipment, coupled with long-term fixed position or low-headed work. According to statistics, the incidence of CS is particularly prominent in some special populations and occupational groups: 10.8% in university faculty, 25.0% in the elderly, 27.3% in government personnel,

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33.9% in white-collar workers, and 54.8% in civil servants. Regional incidence rates range from 8.1% to 19.1%, with an increasing trend observed over the years [4, 5].

CS can be divided into five types based on clinical symptoms [6]: nerve root type, vertebral artery type, sympathetic type, cervical spondylotic myelopathy, and mixed cervical spondylosis (MCS). MCS, which involves cervical intervertebral disc degeneration or secondary intervertebral joint degeneration, is the most common form. It represents a combination of more than two types of cervical spondylosis [7]. Among these, the CS radiculopathy is the most prevalent. Due to the compression of the intervertebral foramen to the nerve root, limb pain and numbness are caused. Cervical spondylotic myelopathy poses significant risks as it can compress spinal cord, causing deformation, edema, and movement disorders [8]. Vertebral artery type CS, caused cervical spine bone spurs compressing vertebral artery, often presents with headache and dizziness. Sympathetic CS is generally caused by stimulation of the sympathetic nerves due to CS, with symptoms including sympathetic nerve excitation such as nausea and vomiting. When two or more of these types co-occur, it constitutes MCS. For the disease treatment, Western medicine mainly relies on surgery, traction and drug intervention. Despite diverse approaches, the overall effect remains suboptimal, prompting consideration of traditional Chinese medicine approaches [9].

Acupuncture therapy is an important branch of TCM [10]. By stimulating acupoints, it regulates the balance of qi and blood, yin and yang in the human body, so as to achieve the purpose of treating diseases. Cervical Jiaji points (EX-B2) are located on both sides of the spinous process from the first to seventh cervical vertebrae, 0.5 inches lateral to the posterior median line, 7 acupoints on each side with a total of 14 acupoints. Cervical Jiaji points can regulate the qi of the governor vessel and improve the blood circulation of the vertebral artery. Warm acupuncture at cervical Jiaji points can improve the blood flow of the vertebral-basilar artery, increase the blood supply to the brain, and effectively relieve the clinical symptoms of patients. Study indicates that the mechanism of stimulating Jiaji points in the treatment of

cervical spondylosis mainly includes improving the blood circulation of vertebral artery [11]. In addition, studies [12] have shown that acupuncture at Jiaji points can improve the tension of the cervical occipital muscles, reduce the mechanical compression of the blood vessels and the stimulation of the cervical nerve root by cervical degeneration, reduce the excitability of the sympathetic nerve, and increase the inner diameter and blood flow velocity of the vertebral artery, thereby improving the reticular structure in the brainstem, vestibular nucleus and inner ear ischemia, and mitigating dizziness. While various acupuncture and moxibustion methods exist for treating cervical spondylosis, research specifically addressing the treatment of mixed cervical spondylosis (MCS) using cervical Jiaji points is lacking. Therefore, this study aims to investigate the clinical effectiveness of modified cervical Jiaji point acupuncture in the treatment of MCS through clinical observation.

Materials and methods

Research subjects

This retrospective study was approved by the Ethics Committee of the Affiliated Yongchuan Hospital of Chongqing Medical University. A total of 120 patients with MCS who were treated in Yongchuan Hospital Affiliated with Chongqing Medical University from May 2020 to May 2023 were selected as the research subjects. Fifty-two patients who were treated with ordinary seat traction from January 2020 to December 2021 were grouped into the traditional treatment, tendon manipulation and ironing were selected as the traditional treatment group; 68 patients who were treated with acupuncture at cervical Jiaji points from January 2022 to December 2023 constituted the acupuncture group. Patient enrollment flow chart is shown in **Figure 1**. There was no significant difference in baseline data such as gender, age and course of disease between the two groups (all $P > 0.05$, **Table 1**).

Inclusion criteria: (1) Patients met the diagnostic criteria of MCS as defined by Chinese and Western medicine [13, 14]; (2) Patients aged between 18 and 60 years old; (3) Patients without serious complications and acute diseases; (4) Patients who received no other therapies within 1 month of treatment. Exclusion criteria:

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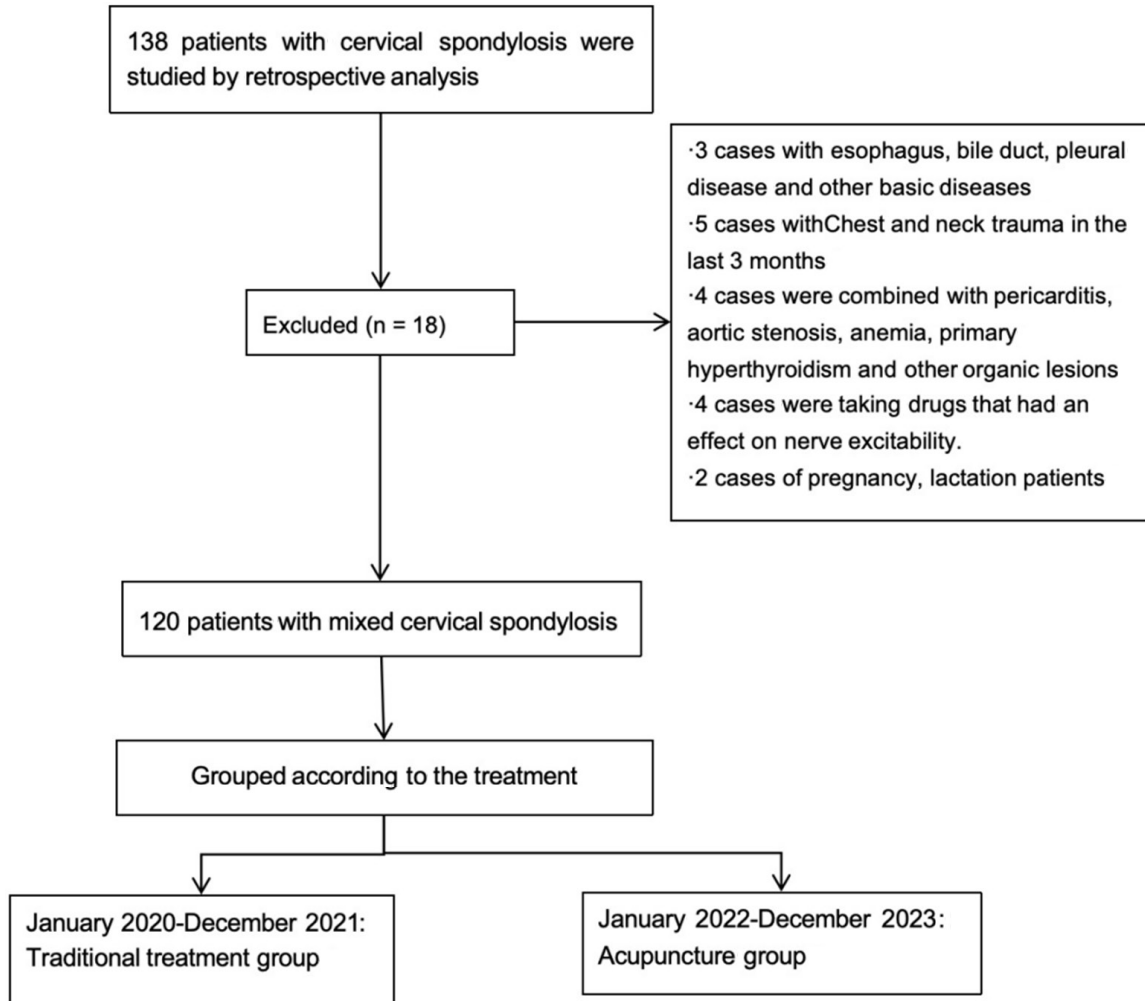


Figure 1. Patient enrollment flow chart.

(1) Patients combined with esophagus, bile duct, pleural disease and other basic diseases; (2) History of chest and neck trauma in the past 3 months; (3) Presence of pericarditis, aortic stenosis, anemia, primary hyperthyroidism or other organic lesions; (4) Patients with medications affecting nerve excitability; (5) Pregnancy, lactation patients.

Diagnostic criteria

Western medicine diagnostic criteria for CS [13]: (1) Clinical symptoms indicative of sympathetic nerve dysfunction; (2) Symptoms of verteobasilar artery ischemia, primarily vertigo; (3) Positive outcome in rotation neck test; (4) Anteroposterior X-ray films showing sharpened uncinat joint, transverse hyperplasia, narrowed intervertebral space. Lateral X-ray films

showing altered cervical curvature (reduced, disappeared or even reversed) and vertebral body margin instability in flexion and extension positions. (5) Transcranial color Doppler (TCD) indicating blood flow disorder in vertebral and basilar arteries. A diagnosis of CS is confirmed when a patient exhibits two or more of the above symptoms, in conjunction with their medical history and disease progression.

TCM diagnostic criteria of CS [14]: CS manifests as varying clinical symptoms due to different parts and degrees of pathological changes and different tissues involved, necessitating a TCM dialectical classification. (1) Wind-cold obstruction type [15]: Patients have a history of exposure to wind-cold, experiencing primarily localized cold pain that worsens with further cold exposure. This type is also characterized

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Table 1. Comparative analysis of the basic situation of the two groups [n (%), (Mean ± SD)]

Index	Acupuncture group (n = 68)	Traditional treatment group (n = 52)	χ^2/t	P
Gender (male/female)	19/49	17/35	0.317	0.574
Age (year)	53.13±6.12	54.087±5.60	0.869	0.387
Course of disease (month)	11.71±2.99	11.02±2.52	1.331	0.186
Neck pain (yes/no)	36/32	32/20	0.887	0.346
Numbness (yes/no)	38/30	34/18	1.109	0.292
Headache (yes/no)	40/28	32/20	0.090	0.764
Insomnia (yes/no)	33/35	30/22	0.992	0.319
History of diagnosis			1.691	0.429
Neck X-ray examination	26 (38.24)	24 (46.15)		
Magnetic resonance imaging	19 (27.94)	16 (30.77)		
Computed tomography myelography	23 (33.82)	12 (23.08)		
Complications				
Hypertension (yes/no)	37/31	32/30	0.102	0.749
Diabetes (yes/no)	34/34	29/33	0.135	0.713
Type of CS				
Radicular type	35/33	31/21	0.790	0.374
Vertebral arterial type	36/32	33/19	1.335	0.248
Spinal CS	40/28	30/22	0.016	0.901
Cervical spondylosis	27/41	18/34	0.326	0.568
Sympathetic CS	29/39	20/32	0.214	0.644

Note: CS, cervical spondylosis.

by numbness and a cold sensation in the arm, soreness of the whole body, and an aversion to wind and cold. (2) Qi stagnation and blood stasis type: Commonly seen in patients with a history of trauma or those who perform desk-bound work. Symptoms include localized fixed pain points, stiffness and discomfort in the neck, and tenderness around the shoulders. (3) Liver and kidney deficiency type: Characterized by neck and shoulder pain, this type also involves dizziness, tinnitus, soreness and weakness of waist and knees and other systemic symptoms. While this study focuses on the TCM diagnosis of mixed cervical spondylosis (MCS), it is important to note that in clinical practice, these types rarely present in isolation. The most frequent scenario involves the simultaneous presence of symptoms from two or more types, constituting MCS.

Therapies

The traditional treatment group was treated with ordinary seat traction, tendon manipulation and ironing [16]. (1) Ordinary seat traction: The patients were seated on the traction device

with their gaze forward. An occipital jaw belt was secured around the neck, and patients were instructed to tilt the head slightly backward by 5° to 10°. Traction began with a weight of 4 kg, gradually increasing to a maximum of 10 kg, adjusted according to the patient's weight. This treatment was administered once daily for 30 minutes, five days a week over a two-week period. (2) Tendon manipulation: This involved massaging the neck muscles with the palm root and the pulp of the thumb and index finger, escalating from gentle to more intense pressure. Acupoints on both sides of the neck were targeted with the thumb tip or elbow tip, and muscles were dialed vertically to adjust dislocated joints. This was done once daily for 30 minutes, with five sessions constituting one course of treatment. (3) TCM ironing treatment: A herbal mix including TCM red peony root, safflower, spatholobus suberectus, lycopodium, tougucao, gentiana, angelica, cassia twig, and mugwort (15 g each, except spatholobus suberectus and lycopodium at 20 g) was ground into coarse powder and packaged. The package was heated in a microwave until it was hot but manageable to touch and then applied to the

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patient's neck for ironing. Care was taken to ensure patient comfort and prevent burns, administered once daily for approximately 30 minutes over a two-week period.

The acupuncture group, as the name implies, was treated with acupuncture at cervical Jiaji points. After routine disinfection, Jiachen disposable acupuncture needles (filiform needles, 0.25 mm-40 mm) were used. The main acupoints included Baihui, Fengchi, cervical 3-6 Jiaji points, Fengfu, among others, with additional points based on the CS type. (1) Nerve root type CS [17]: Dazhui, Houxi, and Hegu were additionally acupunctured; (2) Vertebral artery type of CS [18]: Taiyang, Yintang, and Fengfu were additionally acupunctured; (3) Vertebral CS [19]: Yaoyangguan, Shenshu, and Ciliao were additionally acupunctured; (4) Neck type CS: Jiajianjing, Quchi, and Hegu were additionally acupunctured; (5) Sympathetic CS: Neiguan, Xinshu, and Geshu were additionally acupunctured. Needles were inserted and manipulated using reinforcing, twisting reducing, or flat reinforcing methods. A pair of electrodes were attached to both sides of the cervical vertebra 3-6 Jiaji points, connected to an electroacupuncture device set at 2 Hz. The intensity was adjusted according to patient tolerance. Teding Diacibo Pu (TDP) irradiation was positioned 15 cm from the skin to provide a warm sensation. Needle retention was maintained for 30 minutes, once a day, five days a week for two continuous weeks. Acupoint selection was guided by the type of syndrome differentiation according to TCM principles.

Observation indicators

Main outcome measures: (1) Blood flow improvement: The mean blood flow velocity (Vm) of right vertebral artery (RVA), left vertebral artery (LVA) and basilar artery (BA) was obtained by imaging examination. (2) Cervical range of motion: The angles of right rotation, left rotation, extension, flexion, left flexion and right flexion were measured. (3) Cervical spine function: The Neck Disability Index (NDI) was used to evaluate 10 aspects including pain intensity, self-care, work, reading, attention, uprightness, driving, headache, sleep and entertainment, with scores ranging from 0 to 50 points. The Clinical Assessment Scale for Cervical Spondylosis (CASCS) was used to evaluate the subjec-

tive symptoms, life, work and social adaptability, with scores ranging from 0 to 100.

Secondary observation indicators: (1) Pain evaluation: The Pain Rating Index (PRI) was used to evaluate the pain of patients before and after treatment, including 11 sensory items and 4 emotional items. The score ranges from 0-3 (no pain to severe pain), with a total score of 0-45. (2) Pain intensity: The Present Pain Intensity (PPI) scale was used to evaluate the pain before and after the treatment, with scores from 0 to 5. (3) Quality of pain improvement: The Visual Analogue Scale (VAS) was used to evaluate the degree of pain, with scores ranging from 0 to 10. (4) Efficacy evaluation. Healing: Disappearance of neck and shoulder pain, normal neck and limb function and muscle strength, and the ability to participate in normal work. Markedly effective: Significant improvement in neck and shoulder pain and neck and limb function. Effective: Gradual improvement in clinical symptoms and limb function, though some obstacles in cervical spine function may remain. Ineffective: no improvement in symptoms.

Statistical methods

SPSS 26.0 was used for data analysis. Measurement data were expressed as Mean \pm SD. Paired sample t test was used for intra-group comparison of before and after treatment, and the independent sample t test was used for between-group comparison. Count data was expressed as rate (%) and compared using χ^2 test. Ordinal categorical data were analyzed by Mann Whitney U test, expressed as (U). $P < 0.05$ was considered statistically significant.

Results

Blood flow improvement

After treatment, the mean blood flow velocity (Vm) in the right vertebral artery, left vertebral artery and basilar artery of acupuncture group were all faster than those of the traditional treatment group (all $P < 0.05$, **Table 2**).

Cervical range of motion

After treatment, the cervical range of motion in various directions, including right rotation, left

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Table 2. Blood flow improvement (Mean ± SD)

Blood flow velocity (cm/s)	Time	Acupuncture group (n = 68)	Traditional treatment group (n = 52)	t	P
LVA	Before treatment	25.76±3.29	25.67±3.05	0.156	0.876
	After treatment	35.79±4.61*	30.31±3.83*	6.938	< 0.001
RVA	Before treatment	25.60±3.31	26.15±2.99	0.940	0.349
	After treatment	35.06±5.27*	31.38±3.98*	4.194	< 0.001
BA	Before treatment	33.19±4.22	34.08±4.88	1.064	0.290
	After treatment	39.46±5.56*	37.29±4.65*	2.269	0.025

Notes: LVA, left vertebral artery; RVA, right vertebral artery; BA, basilar artery. *Compared with the same group before treatment, P < 0.05.

Table 3. Comparison of cervical spine activity (Mean ± SD)

Cervical range of motion (°)	Time	Acupuncture group (n = 68)	Traditional treatment group (n = 52)	t	P
Dextrorotation	Before treatment	54.75±6.23	53.37±4.99	1.313	0.192
	After treatment	75.84±7.55*	68.50±7.09*	5.416	< 0.001
Levorotation	Before treatment	55.43±5.17	56.23±5.80	0.800	0.425
	After treatment	74.69±6.73*	68.15±6.07*	5.502	< 0.001
Posterior extension	Before treatment	38.22±3.47	38.44±3.51	0.345	0.731
	After treatment	50.60±4.82*	45.04±4.47*	6.465	< 0.001
Anteflexion	Before treatment	37.46±2.59	37.48±2.95	0.049	0.961
	After treatment	47.93±4.38*	40.31±4.37*	9.459	< 0.001
Left flexion	Before treatment	31.00±3.19	31.88±3.26	1.491	0.139
	After treatment	42.34±3.89*	37.65±3.54*	6.786	< 0.001
Right flexion	Before treatment	33.35±4.34	33.94±4.13	0.753	0.453
	After treatment	43.88±5.21*	39.83±4.78*	4.377	< 0.001

Note: *Compared with the same group before treatment, P < 0.05.

Table 4. Cervical spine function score (Mean ± SD)

Cervical spine function score	Time	Acupuncture group (n = 68)	Traditional treatment group (n = 52)	T	P
NDI score	Before treatment	34.76±3.71	34.81±3.74	0.063	0.950
	After treatment	42.22±5.01*	38.85±4.17*	3.925	< 0.001
CASCS score	Before treatment	74.15±5.99	73.69±5.86	0.416	0.678
	After treatment	88.18±6.41*	83.13±5.63*	4.496	< 0.001

Notes: NDI, neck disability index; CASCS, clinical assessment scale for cervical spondylosis. *Compared with the same group before treatment, P < 0.05.

rotation, posterior, flexion, left and right flexion in acupuncture group were all wider than those of the traditional treatment group (all P < 0.05, **Table 3**), and gradually returned to normal.

Cervical spine function

After treatment, the NDI score and CASCS score of acupuncture group were better than those of traditional treatment group (all P < 0.05, **Table 4**).

Pain situation

After treatment, the PRI scores of both groups decreased, but those in the acupuncture group decreased more than in the traditional treatment group (P < 0.05). See **Figure 2**.

Pain intensity

After treatment, the PPI scores of both groups decreased, but the acupuncture group

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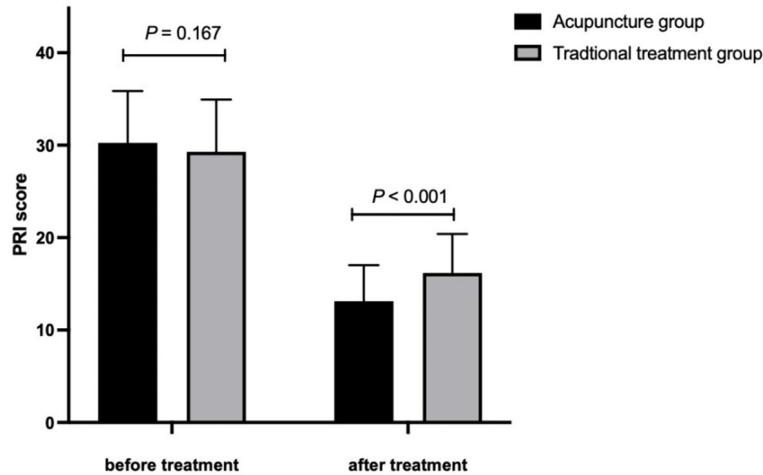


Figure 2. Pain rating index (PRI) score.

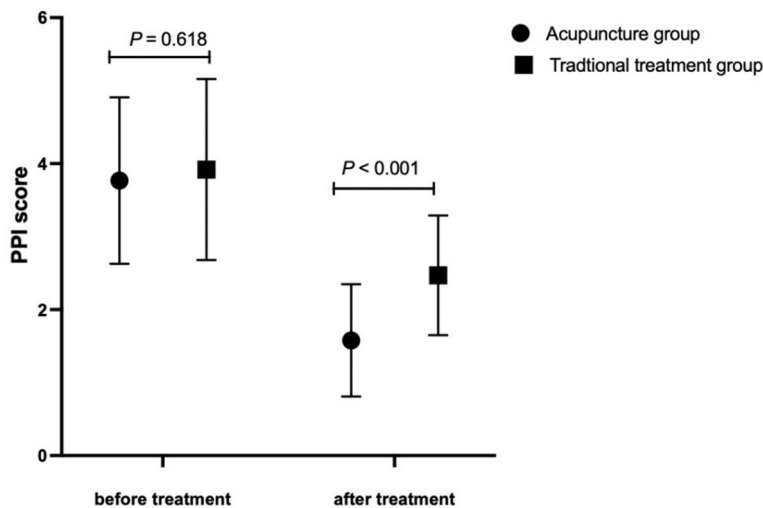


Figure 3. Present pain intensity (PPI) score.

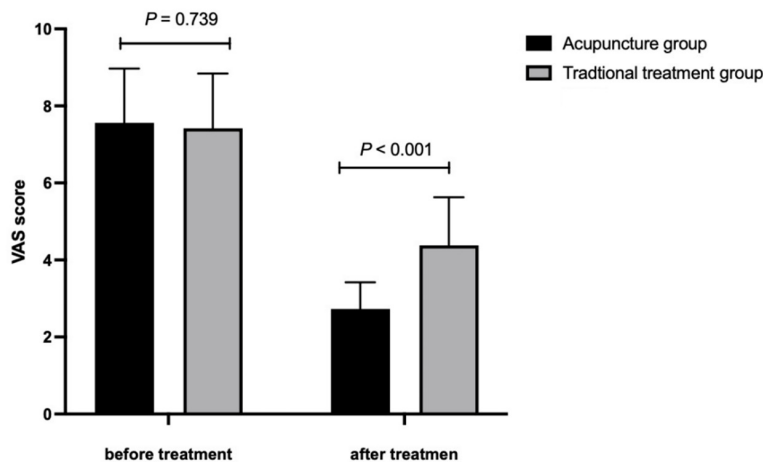


Figure 4. Visual analogue scale (VAS).

decreased more than the traditional treatment group ($P < 0.05$). See Figure 3.

Pain improvement quality

After treatment, the VAS scores of both groups decreased, but the acupuncture group decreased more than the traditional treatment group ($P < 0.05$). See Figure 4.

Efficacy evaluation

After 2 weeks of treatment, the total effective rate in the acupuncture group was 86.67%, which was significantly higher than 71.67% in the traditional treatment group ($P < 0.05$, Figure 5).

Discussion

In TCM, cervical spondylosis (CS), is generally categorized in 'arthralgia' and 'neck and shoulder pain' syndrome, typically involve symptoms like pain and numbness in the shoulders, neck, and arms. TCM attributes the development of neck and shoulder pain to factors such as constitution, environmental influences, and dietary habits [20]. The foundational internal pathogenesis in patients involves long-term chronic strain leading to deficiencies in vital and defensive qi, while the obstruction of meridians, qi stagnation and blood stasis serve as the external causes. Modern lifestyle factors such as sedentary habits and poor exercise routines lead to disorders in qi and blood, often exacerbated by exposure to cold elements like air conditioning and cold beverages, which block qi and blood flow and intensify symptoms [21].

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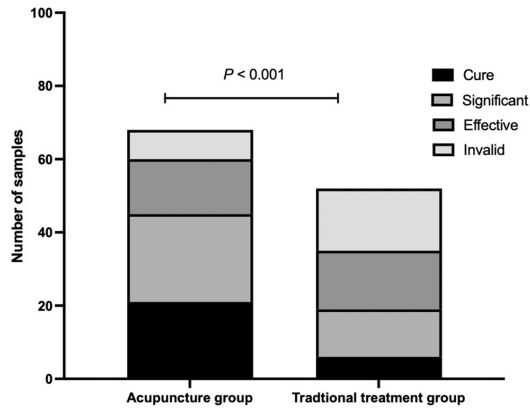


Figure 5. Efficacy evaluation.

Recent years have seen a growing application of TCM modalities such as acupuncture and massage in the rehabilitation treatment of CS. By stimulating acupoints, local blood circulation at the cervical spine is promoted, facilitating pain relief and recovery of cervical spine function, making these treatments well-received by patients [22]. However, current clinical treatments for mixed cervical spondylosis primarily utilize angle traction to relax neck and shoulder muscles and alleviate pain, although the overall effectiveness often remains suboptimal [23, 24]. In this study, stimulating cervical Jiaji points in the acupuncture group significantly improved patients' conditions compared to the traditional treatment group, as evidenced by reductions in the PRI, PPI and VAS scores. The current research results show that, acupuncture combination can relieve cervical spasm, reduce the degree of nerve compression, and improve vertigo, numbness, and headache symptoms. As a traditional Chinese medicine (TCM) treatment, acupuncture therapy treats cervical spondylosis by stimulating the corresponding acupoints, regulating blood circulation and improving muscle tension [25]. The acupuncture therapy of the MCS in this study was to stimulate cervical vertebra 3-6 Jiaji points, which are crucial for regulating the viscera, relaxing the meridians and activating the collaterals. They help in repairing ischemic vertebral bodies, eliminating blood stasis, and reducing edema, thereby regulating nerve functions [26, 27]. Based on the individual's condition, the treatment of additionally selected acupoints effectively reduced the intensity of neck pain of patients. Among those, Baihui is closely related to the brain, and stimulating this point

can balance the yin and yang meridians; acupuncture at Fengfu can enhance mental clarity and calmness; acupuncture at the Fengchi can clear the head and improve vision, and open the sensory orifices; acupuncture at Taiyang point can invigorate the spirit, relieve pain, and diminish vertigo [28]. Acupuncture at modified cervical Jiaji points has anti-inflammatory and analgesic effects, promoting blood circulation and dredging vessels. Cervical nerves and their posterior branches are distributed around cervical Jiaji points. Acupuncture at these points can improve blood flow, relieve pain, and significantly enhance the quality of life for patients with cervical spondylosis.

The concept of the "Cervical Jiaji Point" emerged in the 19th century and has since been widely accepted and utilized in the acupuncture community for treating various types of CS. Located between the governor vessel and the bladder meridian, the cervical Jiaji point plays a crucial role in regulating yin and yang. It achieves therapeutic effects such as muscle relaxation, activation of collaterals, joint dredging, and pain relief [29]. Anatomically, these points are situated in the area of the neck's extensor muscle group. Stimulating these points through acupuncture can invigorate the surrounding muscle groups, enhance meridian qi and blood, promote circulation, and alleviate muscle tension and pain [30]. In this study, the acupuncture group outperformed the traditional treatment group in terms of blood flow improvement, cervical spine mobility and cervical spine function score. This indicates that acupuncture at cervical Jiaji points combined with Fengchi, Fengfu and other acupoints can effectively improve the cervical mobility and cervical function of patients with MCS and promote the improvement of hemodynamics. Patients with MCS usually experience hip and shoulder pain, symptoms that TCM attributes to qi and blood stasis, meridian blockages, sprains, external pathogenic factors, and sedentary lifestyle effects [31]. The main lesion sites in MCS are associated with the bone, governor vessel, and the foot sun meridian. Stimulating cervical vertebra 3-6 Jiaji points, Fengchi, Fengfu, Baihui, Hegu and other points can effectively relieve neck muscle tension, reduce nerve root inflammation and edema, and enhance the nutrition and blood supply to the spinal cord, nerve root, and sur-

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rounding cervical tissues. It corrects local blood and metabolic circulations and achieves a dynamic and static balance by improving the dynamic imbalance of the cervical spine, thus regulating yin and yang [32, 33]. In this study, the total effective rate in the acupuncture group was significantly higher than that of traditional treatment group, showcasing how combining acupuncture at acupoints such as cervical Jiaji points can not only effectively improve the relevant clinical symptoms and obtain good clinical results, the analgesic effect is also obvious. Acupuncture at cervical Jiaji points can achieve the effects of dredging meridians and activating collaterals, promoting blood circulation and removing blood stasis, dispelling cold and relieving pain, and improving the blood flow of spinal cord, nerve root and surrounding tissues of cervical vertebra. With precise acupoint selection, acupuncture maximizes therapeutic benefits while minimizing adverse stimulation to the affected areas, leading to favorable clinical outcomes [34, 35].

Acupuncture has certain advantages in the therapeutics of MCS, but the pathogenesis of CS is complex. The clinical samples in this study were derived from a single center, which may not represent a broader demographic. Additionally, the sample size was relatively small, potentially impacting the generalizability of the results. The principle of acupuncture at cervical Jiaji points in the treatment of CS should be further studied. Therefore, the study of acupuncture at cervical Jiaji points for the treatment of MCS still needs to be further explored and verified.

Conclusion

In summary, the treatment of mixed cervical spondylosis (MCS) using acupuncture at modified cervical Jiaji points, has demonstrated significant clinical benefits. This approach effectively enhances cervical function and mobility, alleviates clinical symptoms, and reduces pain intensity, thus deserving clinical promotion.

Disclosure of conflict of interest

None.

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