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Clinical Observation on the Therapeutic Effect of Huangdi Nine Needles in Treating Mixed Cervical Spondylosis

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Abstract: *This clinical study aimed to evaluate the therapeutic efficacy of Huangdi Nine Needles in treating mixed-type cervical spondylosis. A total of 60 patients with mixed-type cervical spondylosis were randomly divided into a control group (n=30, receiving conventional acupuncture therapy) and a treatment group (n=30, receiving Huangdi Nine Needles therapy). The symptom scores, cervical function scores, and overall therapeutic outcomes were compared between the two groups before and after treatment. The results demonstrated that the total effective rate in the treatment group was significantly higher than that in the control group (P<0.05), with superior improvement in symptoms such as neck pain, upper limb numbness, and dizziness. This clinical study confirms that Huangdi Nine Needles exhibits significant efficacy in treating mixed-type cervical spondylosis and is worthy of clinical promotion.*

Keywords: *Mixed cervical spondylosis; Huangdi Nine Needles; Clinical efficacy; Foot Taiyang Bladder Meridian*

1. Introduction

Cervical spondylosis, as a common degenerative condition in orthopedics, has complex etiologies and is widely attributed to factors such as chronic strain, osteophyte formation, and congenital cervical spinal stenosis. Epidemiological studies indicate that the incidence of cervical spondylosis has been rising annually and shows a trend toward younger age groups [1].Clinically, cervical spondylosis can be classified into cervical type, radiculopathy type, vertebral artery type, spinal cord type, and sympathetic type, though the mixed type is most commonly observed.Mixed cervical spondylosis often manifested as neck stiffness and pain, numbness of the upper limbs, dizziness, and other symptoms. In traditional Chinese medicine, it belongs to the categories of “bone Bi” “tendon Bi” and “neck rigidity”

The Lingshu·Meridians (chapt. 10)[2] states: “The Bladder Foot Taiyang meridian governs diseases of the tendon, pain in the head and fontanelle, pain in the neck, back, waist, buttocks, popliteal fossa, and feet,” indicating that the Foot Taiyang Bladder meridian is closely related to tendon disorders of the neck region.The Lingshu·The Conduits and their Sinews (chapt. 13) states: “The Foot Taiyang sinew channel,its branch runs upward along the spine and up the neck;its main channel binds at the occipital bone. The Hand Taiyang sinew channel runs along the neck;its branch binds at Wangu (TB12) behind the ear.” This suggests that the two channels converge and distribute together in the posterior neck region, making them the core associated sinew channels for pain in the back of the neck.

“The Hand Shaoyang sinew channel winds upward along the lateral side of the upper arm, ascends to the shoulder, travels to the neck, and joins the Hand Taiyang sinew channel; its branch, at the region of the cheek, enters and connects with the root of the tongue; another branch ascends along the curved jaw, follows the anterior ear, connects to the outer canthus, travels upward over the jaw, and binds at the temple. When this channel is affected, symptoms arise along its pathway, including spasms of the sinews and curling of the tongue.” This indicates its involvement in symptoms related to the head, face, and orifices.

“The Hand Yangming sinew channel, its main channel runs from Jianyu (LI15) up the neck; its branch ascends to the left temple, connects to the head, and descends to the right jaw.” This suggests that its branches are closely associated with the lateral neck and head-face region.“The Hand Taiyang sinew channel when diseased enters the axilla, causing pain in the axilla, pain along the posterior axillary border, and pain that radiates around the scapula and extends to the neck.” This is consistent with the characteristic of sinew channel disorders: “pain along the pathway of the channel accompanied

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by spasms."

Based on the theory of meridians and the doctrine of bi syndrome, this study employs the Huangdi Nine Needles to regulate and unblock the sinew channels, observing its clinical efficacy in treating mixed-type cervical spondylosis.

2. Materials and Methods

2.1 General Data

Sixty patients with mixed cervical spondylosis who visited between January 2022 and December 2023 were selected and randomly divided into a control group (30 cases: 14 males, 16 females; age 40–65 years; disease course duration between 6 months–10 years) and a treatment group (30 cases: 13 males, 17 females; age 38–67 years; disease course duration between 8 months–12 years). There were no statistically significant differences in general data between the two groups ($P > 0.05$), indicating comparability.

2.2 Diagnostic Criteria

Western medicine diagnosis referred to the criteria for mixed cervical spondylosis in the Guidelines for Diagnosis, Treatment, and Rehabilitation of Cervical Spondylosis[3], confirmed by X-ray or CT imaging. Traditional Chinese medicine diagnosis conformed to the diagnostic points of "neck Bi" in the Standards for Diagnosis and Therapeutic Effect of TCM Diseases and Syndromes[4].

2.3 Treatment Methods

Control group: Treatment method used was onventional acupuncture treatment, selecting acupoints such as EX-B2, GB20, GB21, TE5, and LI4. Balanced reinforcing-reducing technique was applied, needles retained for 30 minutes, once daily, 5 sessions per course, for a total of 2 courses.

Treatment group: Treatment method used was Huangdi Nine Needles therapy. According to the characteristics of the nine needles described in Lingshu·The Official Needles, the Hao needle, Ti needle, and Yuanli needle were selected. The main acupoints included the Foot Taiyang Bladder meridian's BL10, BL11, BL23 and Chengshan BL57; the Governor Vessel's Dazhui GV14 and Zhiyang GV9; and local Ashi points. Techniques such as "transport puncture" and "short puncture" were used, with deep insertion to the periosteum. Treatment was performed once every 5 days, for a total of 2 sessions.

2.4 Observation Indicators

(1) Symptom score: Based on the Cervical Spondylosis Symptom Score Table, evaluating neck pain, upper limb numbness, dizziness, etc., with scores increasing according to severity.

(2) Cervical function score: Using the Neck Disability Index (NDI) [5], which covers 10 items, with a maximum score of 50. Lower scores indicate better cervical function. (3) Overall efficacy: Classified as cured, markedly effective, effective, or ineffective.

2.5 Statistical Methods

SPSS 22.0 software was used for data processing and statistical analysis. Measurement data were expressed as mean standard deviation$(\bar{x} \pm s)$ $p \leq 0.05$ was considered statistically significant, and $p \leq 0.01$ was considered highly significant.

3. Results

3.1 Comparison of symptom scores before and after treatment between the two groups

Before treatment, there was no statistically significant difference in symptom scores between the two groups ($P > 0.05$). After treatment, symptom scores in the treatment group were significantly lower than those in the control group ($P < 0.01$), see Table 1.

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Table 1: Comparison of symptom scores before and after treatment between the two groups($\bar{x} \pm s$)

Groups	n	Before treatment	After treatment	F	P
Treatment group	30	19.1±3.5	6.8±2.1	9.47	0.000
Control group	30	18.5±3.2	10.2±2.8	6.32	0.000
F		0.686	9.310		
P		0.418	0.007		

3.2 Comparison of cervical function scores before and after treatment between the two groups

Before treatment, there was no statistically significant difference in cervical function scores between the two groups of patients, as measured by the Neck Disability Index (NDI). After treatment, the NDI scores in the treatment group were significantly lower than those in the control group ($P < 0.01$), see Table 2.

Table 2: Comparison of Neck Disability Index (NDI) scores before and after treatment between the two groups($\bar{x} \pm s$)

Groups	n	Before treatment	After treatment	F	P
Treatment group	30	39.40±3.39	17.13±3.88	561.166	0.000
Control group	30	38.83±2.44	22.23±4.99	270.907	0.000
F		0.474	19.561		
P		0.625	0.000		

3.3 Comparison of clinical efficacy

The markedly effective rate in the treatment group was 80.00%, and the total effective rate was 96.67%. In the control group, the markedly effective rate was 30.00%, and the total effective rate was 80.00%. The markedly effective rate in the treatment group was significantly higher than that in the control group ($P < 0.01$), and the total effective rate in the treatment group was significantly higher than that in the control group ($P < 0.05$) (see Table 3).

Table 3. Comparison of clinical efficacy between the two groups

Groups	Cured	Markedly effective	Effective	Ineffective	Markedly effective rate (%)	Total effective rate (%)
Treatment group	0	24	5	1	80.00	96.67
Control group	0	9	15	6	30.00	80.00
Pearson chi-square					20.000a	4.043a
P					0.000	0.044

4. Discussion

The study revealed that the risk factors strongly associated with the onset or exacerbation of cervical spondylosis are no longer age, occupation, or educational level, but rather acute and chronic pharyngeal/laryngeal infections, smoking, use of high-hard pillows, and average daily time spent working with the head lowered. This indicates that the risk factors for cervical spondylosis have shifted from natural degenerative processes to lifestyle and occupational behaviors, environmental factors, and constitutional predispositions. These etiological factors, along with cervical degeneration and injury, represent irreversible pathological changes that induce secondary pathological alterations, leading to dynamic and static biomechanical imbalance and cervical biomechanical dysregulation. Dynamic imbalance results in ischemia and hypoxia of cervical muscles, ligaments, and nerves; static imbalance elevates the activity of degradation enzyme systems within intervertebral discs, triggers excessive release of inflammatory mediators, cytokines, and nitric oxide, and activates immune responses due to nucleus pulposus herniation as autoantigens. Reduced nutrient supply to degenerated discs promotes cellular aging and apoptosis, matrix degradation, disc bulging/herniation, annular rupture, and exacerbates cervical degeneration through external pathogenic influences, chronic strain, and

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pharyngeal infections[6].

This demonstrates that cervical spondylosis is a chronic pathological process involving alterations in the balance of bone structure. To address its fundamental pathogenesis, we believe that restoring the endogenous and exogenous dynamic equilibrium of the cervical spine constitutes a crucial foundation for treating radiculopathy-type cervical spondylosis. Traditional Chinese Medicine (TCM) comprehensive therapy effectively synergizes multiple therapeutic approaches, leveraging their complementary advantages to enhance efficacy and deliver definitive outcomes[7]. The Huangdi Nine Needles Therapy exemplifies such a TCM-based comprehensive treatment modality with proven clinical efficacy.

Acupuncture therapy is widely employed in the treatment and rehabilitation of cervical spondylosis due to its unique advantages of unblocking meridians, harmonizing qi and blood, alleviating muscle tension and pain, and exhibiting fewer adverse effects.Acupuncture and moxibustion is a collective term for needle therapy and heat application techniques, referring to the use of needles or moxa applied to specific acupoints under the guidance of Traditional Chinese Medicine (TCM) theory.

It represents a unique therapeutic approach in TCM, embodying the concept of "treating internal diseases externally," and treats disorders through the meridian and acupoint pathways as well as specialized manipulation techniques [8]. Historical records document the application of acupuncture in treating cervical spondylosis; for instance, the Suwen Bingneng Lun states: "For cases of neck abscesses, both stone therapy and acupuncture can be effective," indicating that ancient practitioners recognized the efficacy of acupuncture for this condition. With the continuous evolution of TCM, acupuncture has become one of the effective modalities for managing cervical spondylosis, offering advantages such as avoiding the burden on the liver and gastrointestinal tract associated with oral medications and broader applicability[9] .

The pathogenesis of mixed cervical spondylosis is mostly due to cold-damp Bi syndrome, liver and kidney deficiency, and invasion of external pathogens, leading to poor circulation of Qi and Blood in the Foot Taiyang Bladder meridian and the Governor Vessel, resulting in malnourishment of the tendons. Lingshu·Meridians (chapt. 10) emphasizes that the Foot Taiyang Bladder meridian “governs tendon-related diseases” and its course “branches down to the neck, follows the inner shoulder blade, and runs along the spine to the waist,” which highly corresponds to the pain sites of cervical spondylosis.

The research progress of specialized acupuncture instruments in Traditional Chinese Medicine for cervical spondylosis treatment exhibits diversity and innovation[10].In Huangdi Nine Needles therapy, the Ti needle and Yuanli needle can penetrate deeply into the affected area, regulating joints and unblocking tendons; the Hao needle regulates qi and blood. Huangdi Nine Needles harmonize the balance of Yin and Yang of the internal organs, unblock meridians, and regulate Qi and Blood.

This study shows that the treatment group was superior to the control group in improving symptom scores, cervical function, and overall efficacy, indicating that Huangdi Nine Needles can significantly relieve the clinical symptoms of mixed cervical spondylosis and improve cervical function. Its mechanism may be related to regulating local blood circulation, reducing nerve root compression, and alleviating muscle spasm. In the future, further multi-center, large-sample studies can be conducted, with deeper exploration of its mechanism of action.

5. Conclusion

Huangdi Nine Needles has definite efficacy in the treatment of mixed cervical spondylosis. It can effectively relieve pain and improve cervical function, embodying the academic thought of acupuncture in traditional Chinese medicine, and has high clinical application value.

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