

Clinical effect of cervical paravertebral nerve block combined with Mailuoning and *Angelica sinensis* in treatment of nerve-root type cervical spondylosis

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Abstract: To observe and analyze the clinical effect of cervical paravertebral nerve block combined with Mailuoning and *Angelica sinensis* injection in treatment of nerve-root type cervical spondylosis. 120 patients who have been accepted by our hospital for nerve-root type cervical spondylosis were selected as research objects. They were randomly divided into a research group and a control group, each containing 60 patients. The control group was applied with glucocorticoid nerve block therapy, while the research group was treated by cervical paravertebral nerve block combined with Mailuoning and *Angelica sinensis* injection. The total therapeutic response rates of two groups were compared. The total therapeutic response rate of the research group was relatively higher, $P < 0.05$. Through comparing various clinical effect scores between two groups, the research group also had advantages over control group, $P < 0.05$. The treatment satisfaction degree of the research group was also higher than that of control group, $P < 0.05$. The application of cervical paravertebral nerve block combined with Mailuoning and *Angelica sinensis* injection can achieve better medical results and achieve higher treatment satisfaction degree.

Keywords: Mailuoning, *Angelica sinensis*, cervical paravertebral nerve block, nerve-root type cervical spondylosis.

INTRODUCTION

According to a relevant survey, the population of patients with nerve-root type cervical spondylosis in China has been significantly increased and this disease can cause severe impact to human body (Zhang 2017; Hanafiah *et al.*, 2017). If the disease level is relatively severe, the patients cannot normally live or work, or even suffer limitation of motion, then a targeted treatment is needed.

Nerve-root type cervical spondylosis (fig. 1) is caused by stimulation or compression of single or bilateral spinal nerve root, with symptoms including dyskinesia and dysreflexia. This disease is common, which can be effectively treated by various non-surgical therapies, such as continuous (or intermittent) cervical traction, neck brace and correcting bad posture (Cao *et al.*, 2015; Shaikh *et al.*, 2017).

From the aspect of traditional Chinese medicine, nerve-root type cervical spondylosis belongs to the scope of "injury of tendon and muscle", which is represented by the deficiency of liver and kidney and manifested by wind-cold damp pathogen and blood stasis blocking. During the treatment, the main principle is to activate blood circulation and nourish liver and kidney (Jiang 2015; Aldaihani and Alenzi 2017). This study observes the clinical effect of cervical paravertebral nerve block combined with Mailuoning and *Angelica sinensis*

injection in treatment of nerve-root type cervical spondylosis (Zhang *et al.*, 2016; Mushtaq *et al.*, 2017).

MATERIALS AND METHODS

In this study, 120 patients who had been treated in our hospital for nerve-root type cervical spondylosis (fig. 2) from June 2015 to December 2017 were selected as research objects. This paper has a rigorous structure, and the conclusion has been approved by relevant ethics and relevant departments. The inclusion criteria (Luo, 2017; Muhammad *et al.*, 2017) were: Patients with confirmed nerve-root type cervical spondylosis, curvature change, decreased foramen intervertebral, narrowed cervical space and vertebral hook joint hyperostosis in imageological examination; positive results in eaten test. The patients have signed informed consent prior to treatment. The exclusion criteria (Liu *et al.*, 2016) were: Patients with other types of cervical spondylosis, neck infection, neoplasm, coagulation disorders, history of neck trauma, severe osteoporosis, shoulder joint peri-arthritis, tennis elbow, carpal tunnel syndrome, cervical back fasciitis, dysphrenia and lower compliance (Yang *et al.*, 2017).

The selected patients were randomly divided into the research group and the control group, each containing 60 patients. In the research group, there were 35 males and 25 females, with age ranging from 30 to 70 (averaging at 53.6 ± 2.8), course of disease varying between 1 month to 8 months (averaging at 2.6 ± 0.8). In the control group, there were 33 males and 27 females, with age ranging from 32 to 68 (averaging at 54.7 ± 2.5), course of disease

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varying between 1 month to 9 months (averaging at 2.5 ± 1.0). The difference between two groups prior to treatment was of no statistical significance, $P > 0.05$.



Fig. 1: Nerve-root type cervical spondylosis,

Treatment method of the control group: The control group was treated by glucocorticoid nerve block therapy. The patients in the control group were kept in prone position, allowing the neck protruding backward. According to clinical manifestations and examination results of patients, the affected nerve root was accurately determined and then a 3cm incision was made at plane of the cervical spine. Then No.7 puncture needle was inserted vertically, reaching the lateral cervical vertebra (fig. 2) before withdrawing the needle. Subsequently, the needle was inserted again via the posterior margin of lamina for Gas injection resistance test. If the gas resistance disappeared, then stop inserting needle. After local injection of 20mg of betamethasone and 3mL of lidocaine hydrochloride was performed, the puncture site was covered with band-aid. Then, the patients were instructed to keep lateral position for half hour. It was worth noting that the injection was performed once every 3-5 days, and 3 consecutive injections for one complete course (Rizvi, Saleh, 2018).

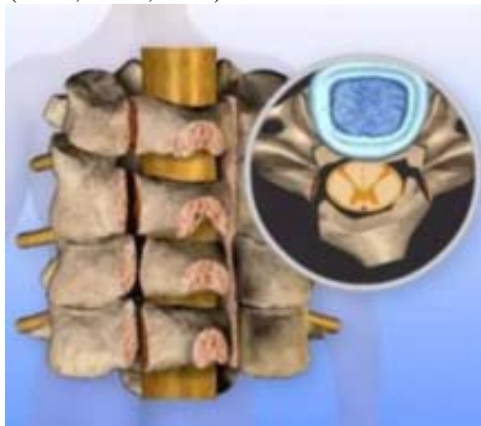


Fig. 2: Cervical vertebral plate (Picture source: Yang A, Han Y, Li S, Xing H, Pan Y and Liu W (2017). Synthesis and comparison of photocatalytic properties for bi2wo6 nanofibers and hierarchical microspheres. *J. Alloy. Compd.*, **695**: 915-921).

Treatment method of the research group: The research group was treated by cervical paravertebral nerve block combined with Mailuoning and *Angelica sinensis* injection, and the mode of puncture was the same as the control group. In addition, 5mL of Mailuoning injection and 2mL of *Angelica sinensis* injection were alternatively given. The treatment was performed once every 3 days, and 4 consecutive treatments for a complete course (Mandava *et al.*, 2017; Safraz *et al.*, 2017).

Observation index

The efficacy scores before treatment, 1 week after treatment and 4 weeks after treatment were evaluated. According to the contents prescribed in “Clinical guideline of new drugs for traditional Chinese medicine” and “Diagnostic criteria of TCM disease syndrome”, the total therapeutic response rates of two groups were evaluated. The criteria for significantly effective include complete removal of clinical symptoms (Numbness of neck and upper limbs, pain, dizziness, etc.), reduction of clinical symptom score of TCM by 95% or above and no abnormalities upon imageological examination. The criteria for effective are: significant improvement of clinical symptoms, reduction of clinical symptom score of TCM by 70%-95%, and no abnormalities upon imageological examination. The criteria for ineffective are no improvements or even aggregation of disease after treatment.

The efficacy scores of cervical spondylosis were evaluated, including tendon reflex, sensory disturbance, neck activity, upper limb numbness, shoulder and back pain, spurling, neck and shoulder pressing pain, upper limb pain, cervical pain. The score of pain varies from 0-6, while the score of functional disorder varies from 0 to 4. The slighter the symptom, the lower is the score.

STATISTICAL ANALYSIS

The statistical analysis was carried out using SPSS21.0. The measurement data was expressed in the form of mean value \pm average value ($\pm s$) and the intergroup difference was tested by t-test. The enumeration data was expressed in natural numbers (n) and percentage (%) and the intergroup difference was tested by X^2 , when $P < 0.05$, the intergroup difference was of statistical significance.

RESULTS

Comparison of total therapeutic response rates of two groups

As shown in table 1, the total therapeutic response rate of the research group is higher than that of the control group, and the intergroup difference is of statistical significance, $P < 0.05$.

Table 1: Comparison of total therapeutic response rates of two groups [n(%)]

Group	Number	Significantly effective	Effective	Ineffective	Total therapeutic response rate
Research group	60	38	20	2	58(96.67)
Control group	60	26	22	12	48(80.00)
X ²					10.32
P					<0.05

Table 2: Comparison of therapeutic effect scores between two groups ($\bar{x} \pm s$)

Group	Number	Before treatment	1 week after treatment	4 weeks after treatment
Research group	60	36.9±4.5	21.5±4.4	10.1±3.6
Control group	60	37.8±4.9	26.8±4.0	18.8±3.2
t		0.16	8.34	10.22
P		>0.05	<0.05	<0.05

Table 3: Comparison of treatment satisfaction degree between two groups [n(%)]

Group	Number	Very satisfactory	Satisfactory	Unsatisfactory	Total satisfaction rate
Research group	60	40	19	1	59(98.33)
Control group	60	30	17	13	47(78.33)
X ²					7.48
P					<0.05

Comparison of therapeutic effect scores between two groups

As shown in table 2, the therapeutic effect score of the research group is higher than that of the control group, and the inter group difference is of statistical significance, $P < 0.05$.

Comparison of treatment satisfaction degree between two groups

As shown in table 3, the total treatment satisfaction degree of the research group is significantly higher than that of the control group, and the intergroup difference is of statistical significance, $P < 0.05$.

DISCUSSION

Cervical part enjoys large range of motion and neck soft tissue has relative weaker structure, therefore, cervical parenchyma strain often occur and degeneration of cervical vertebra may result (fig. 3). If the degeneration of cervical vertebra accompanied with cervical vertebral body osteoporosis exists, the nerve root will be pressed, which may further develop into nerve root symptoms, including muscular tension of neck and shoulder, radiating pain of upper limbs and fingers (Zhou, *et al.*, 2017; Zhou, *et al.*, 2014; Alvi *et al.*, 2017). In treatment of nerve-root type cervical spondylosis, conservative drug therapy is often adopted, because some therapies may lead to adverse effects (Ibrahim, *et al.*, 2016). Therefore, it is very importance to select an effective and safe medical method.

According to TCM theories, nerve-root type cervical spondylosis belongs to the scope of “injury of tendon and

muscle”, which is represented by the deficiency of liver and kidney and deficiency of qi and blood. Therefore, the object was to invigorate qi and blood, promote blood circulation to remove blood stasis, nourish liver and kidney and regulate qi to alleviate pain (Ge *et al.*, 2017; Kaya Narter *et al.*, 2017). Mailuoning injection consists of honeysuckle, dangshen, xuanshen, and *Radix achyranthis bidentatae*, which can realize the function of nourishing liver and kidney and promoting blood circulation. Compound angelica injection consists of safflower, angelica and *Ligusticum wallichii*, which can promote tissue metabolism and repair and improve blood circulation (Kishore *et al.*, 2017). The therapy of cervical paravertebral nerve block combined with Mailuoning and *Angelica sinensis* injection can give a better play to therapeutic effect.

**Fig. 3:** Degeneration of cervical vertebra.

CONCLUSIONS

In conclusion, the therapy of cervical paravertebral nerve block combined with Mailuoning and *Angelica sinensis* injection can achieve better therapeutic effect, higher treatment satisfaction and accelerate the recovery, which should be promoted in clinics.

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