

Treatment Theories of Cervical Radiculopathy with Traditional Chinese Medicine

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Abstract: Cervical radiculopathy (CR) is a common disease of cervical spine, which is mainly caused by neurodegeneration, middle-aged and old people, and is senility disease. The main clinical manifestations were stiff neck and shoulder pain, limitation of movement, upper limb soreness, radiation pain, numbness and abnormal sensation. This article summarizes the treatment of cervical radiculopathy with traditional Chinese medicine and western medicine by exploring the etiology and main clinical analysis index of nerve root disease.

Keywords: Cervical Radiculopathy; Traditional Chinese Medicine Treatment; Progress.

1. Introduction

Cervical radiculopathy (CR) is a kind of nerve root compression disease caused by Cervical facet joint disorder and Cervical degenerative disease [1]. The typical clinical symptom is neck and shoulder pain, radiation Pain in the upper extremities and numb et al. Data survey found that its incidence is increasing year by year, and in recent years has shown a trend of youth. This disease is the dominant disease in orthopedics and traumatology of traditional Chinese medicine, so it is of great significance to study its formation and prevention. Compared with the big trauma and high risk of surgical treatment, traditional Chinese medicine treatment means such as Chinese Patent Medicine, acupuncture and moxibustion, massage, needle knife and so on have obvious advantages.

2. Etiology and Pathogenesis of Cervical Radiculopathy in Chinese and Western Medicine

At present, cervical radiculopathy belongs to the category of "Bi Disease", which is caused by deficiency of liver and Kidney, weakness of Qi and Blood, invasion of wind, cold and dampness, obstruction of Meridians. It is considered that there are four types of CR recognized by experts, Qi stagnation and Blood stasis Syndrome/blood Stasis Syndrome, deficiency of Qi and Blood Syndrome, deficiency of liver and Kidney Syndrome/deficiency of liver and Kidney Syndrome, wind-cold blocking collaterals syndrome/wind-cold blocking Arthralgia Syndrome.

At present, Western medicine believes that the nerve root type of cervical spondylosis has much to do with spine's degenerative changes. The degenerative changes of cervical intervertebral discs begin with the cessation of Human Growth and development, and at the early stage of degeneration, mild symptoms may appear, such as neck pain, radiculopathy, myelopathy and so on. According to the existing theoretical research results, the disease formation mechanism mainly has the following theories:

(1) Mechanical compression: The degeneration of intervertebral disc accumulates continuously, resulting in the compression of nerve roots by structures such as spinal cord,

blood vessels and nerves, resulting in nerve edema and Ischemia.

(2) Dynamic and Static force imbalance: The related muscles around the cervical spine produce chronic injury, resulting in dynamic imbalance, the cervical spine has acute and chronic changes.

(3) Immunological and genetic theory: Murai demonstrated that non-degenerative autologous nucleus pulposus cells can be recognized by macrophages and NK cells to perform immune functions in the early stage of disc disease. In addition, the use of gene chip technology can be found in patients with cervical spondylosis, levels of IL-1, IL-6, TNF- and Matrix metalloproteinase-3(MMP3) were positively correlated with disc degeneration [2].

(4) Bio-chemical factor theory: There are many kinds of inflammatory transmitters in the protruded intervertebral disc and the injured part of nerve. The accumulation of inflammatory substances such as cytokines and Leukotrienes can cause NEURALGIA. T2-weighted peripheral neuropathy changes were detected in 79% of cervical radiculopathy cases, as demonstrated by Schwarz, the imaging appearance of inflammatory nerve injury was successfully simulated quantitatively and qualitatively [3]. Desai demonstrated the relationship between mechanical compression and inflammatory factors through clinical observations, and further elucidated that inflammatory substances produced by mechanical compression are important pathological factors in root pain [4].

Of course, the above factors are inter-influence, inter-relationship. Mechanical compression, can lead to cervical segmental stress abnormalities, surrounding soft tissue stimulation, local increase in Vascular permeability, edema of nerve roots, abnormal release of neurotransmitters and inflammation, triggering the auto immune response, the nerve roots are stimulated to produce inflammatory symptoms, and because of the infiltration of inflammatory cells in the nerve roots, adhesion, contracture, blockage and scarring of the surrounding soft tissues intensify the nerve root compression. The root pain of cervical spondylotic radiculopathy originates from the degeneration of intervertebral disc, and then the imbalance of the biological force of the Cervical Vertebra, which causes the mechanical compression of nerve roots, mechanical compression of nerve roots leads to biochemical

and immune responses in the tissues around the nerve roots, which interact with non-mechanical compression to cause radicular pain.

3. Main Clinical Curative Effect Index of Cervical Radiculopathy

The main mode of Clinical Curative Effect Evaluation of Traditional Chinese medicine is the combination of disease and syndrome. The evidence-based clinical practice guide for degenerative radiculopathy, published by the North American Society of Ridge Surgery, recommends the evaluation of cervical spine dysfunction, quality of life, and pain as class a indicator for the evaluation of clinical outcomes for CR [5], the work, study and social ability as well as quality of life of the patients were evaluated. In recent years, the cervical spine dysfunction index (CDI) has been used in clinical evaluation of CR with good retest reliability [6].

4. Summary of the Treatment of Cervical Radiculopathy with Traditional Chinese Medicine

4.1. Chinese Patent Medicine (Jingshu Granule)

There are two kinds of traditional Chinese medicine for the treatment of cervical radiculopathy: traditional Chinese medicine and traditional Chinese medicine compound prescription. Prostaglandin-E2(PGE-2) induces inflammatory response by changing Vascular permeability and accelerating leukocyte chemotaxis. Meng [7] observed the content of MH74 cells, and explored whether Jingshu granule had anti-inflammatory and analgesic effects on CR rats. The results showed that the main components of Jingshu Granule, Cassia, safflower, Angelica Sinensis and ligusticum chuanxiong can inhibit the expression of main tumor necrosis factor (TNF- α), in the group without cinnamon, safflower and Angelica, the level of IL-6 increased significantly, which proved that cinnamon, safflower, Angelica and Ligusticum were the main anti-inflammatory components of Jingshu granule. In addition, Zheng[8] found that the level of activation and phosphorylated STAT3(p-Stat3) in crested microglia increased in CR rats. Further study showed that Cinnamaldehyde, which is the main component of Jingshu Granule, can block p-Stat 3 and reduce the release of inflammatory factors, it can alleviate the hypersensitivity caused by nerve root compression and inhibit the activation of Microglia. It has been demonstrated that Microglia is one of the main targets of Jingshu granules, and that cinnamaldehyde has been shown in vitro to inhibit the inflammatory response of macrophages and alleviate chronic neuropathic pain, relief of clinical symptoms.

Jianhua Hu [9] conducted a multicenter, randomized, double-blind, placebo-controlled trial in 13 large and medium-sized hospitals in China between August 2015 and July 2017. The efficacy and safety of Jingshu granule in the treatment of cervical radiculopathy were evaluated by visual analogue pain scale (VAS) in 386 patients who completed the study and 360 and 120 patients who were enrolled in Jingshu group and control group, respectively, it is concluded that Jingshu granule is effective in the treatment of cervical radiculopathy.

4.2. Massage Therapy and its Combination Therapy

Massage is helpful for the treatment of cervical radiculopathy. Shengnan Cao [10] randomly divided 120 patients with cervical radiculopathy into three-dimensional balanced manipulation group (TBM group) and Control Group. The control group was treated with traditional massage, and the TBM group was treated with "three-dimensional balance manipulation" based on traditional massage. Mechanical parameters are introduced to simulate TBM, and finite element analysis is carried out. The results showed that the total efficiency of TBM group was significantly higher than that of Control Group. Biomechanical analysis showed that the stress was mainly distributed in the C3/4 spinous process, and the deformation was mainly concentrated in the C3 protrusion. The stress of C3 ~ C7 segment was mainly distributed in the anterior part of C3/4 disc, and the deformation extended to the posterior part of C3/4 nucleus pulposus. In conclusion, these data suggest that TBM treatment for CSR is effective. The results of finite element model and biomechanical analysis provide an important basis for avoiding iatrogenic injury and improving the therapeutic effect of TBM on CSR patients.

4.3. Acupotomy-acupuncture Combined Therapy

Shiming Zhou [11] provides a critical review of comparative evidence on acupuncture and acupotomy for the treatment of cervical radiculopathy, a randomized clinical trial was conducted in March by two independent reviewers who retrieved data from seven electronic databases: Embase, PubMed, Wanfang data, Scopus, Science Direct, Cochrane Library, and 2021, it includes pain intensity, symptom score, disability index of neck, total effective rate and cure rate. The Cochrane bias risk tool is used to assess the risk of Randomized controlled trial bias and to provide reliable and scientific clinical evidence for the efficacy and safety of acupuncture plus acupotomy in the treatment of cervical radiculopathy.

5. Conclusion

Cervical radiculopathy is an aging disease, which seriously affects the quality of life. At present, Chinese and Western medicine is used to treat the disease. Western medicine is mainly used to relieve pain in the treatment of cervical radiculopathy, surgical treatment of severe nerve root compression has a good short-term effect. Traditional Chinese medicine therapy includes acupuncture acupoint injection, acupotomy and traditional Chinese medicine, etc., but after continuous clinical observation, it is found that the combined therapy of TCM has a better effect in the treatment of cervical radiculopathy, and can give full play to the advantages of effective, diverse, safe, tonic and sustainable.

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