

Research Progress of Chinese Medicine in the Treatment of Sciatica

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Abstract: Repeated attacks of sciatica seriously affect the patient's mood and quality of life, while the long-term oral non-steroidal anti-inflammatory drugs and surgical treatment in Western medicine have many adverse effects. In recent years, with the continuous development of traditional Chinese medicine, the treatment of sciatica by traditional Chinese medicine has attracted much attention from the society, and the research on the treatment of sciatica by traditional Chinese medicine has become more and more in-depth, which has achieved good therapeutic efficacy in the aspects of traditional Chinese medicine, acupuncture, and tuina therapy, and is safe and without side effects. The combined application of Chinese medicine is effective, and integrated therapy is gradually becoming a trend. The author summarizes the clinical application of Chinese medicine in the treatment of sciatica in the past 10 years as follows.

Keywords: Sciatic nerve, Traditional Chinese medicine treatment, Combination therapy, Research progress, Review

1. Introduction

Sciatica is one of the most common clinical diseases, can be caused by a variety of causes of inflammation, edema of the sciatic nerve, with persistent or paroxysmal pain, numbness as the main clinical manifestations, is a common peripheral nerve disease ^[1]. According to a study, 85% of this disease is caused by lumbar disc herniation, and it mostly occurs in people aged 40-60 years ^[2]. Recurrent pain seriously affects the patient's mood and quality of life, and long-term use of pain medication also brings many adverse effects and increases the burden of medical care. Surgical treatment for sciatica can relieve pain, but there are many adverse effects ^[3-4]. In recent years, the research of Chinese medicine on the conservative treatment of sciatica has become more and more in-depth, and good efficacy has been achieved in traditional Chinese medicine, acupuncture and tuina therapy, etc., which is safe and has no side effects. The combined application of Chinese medicine has better clinical effects, and the author summarizes the progress in the past 10 years as follows.

2. Etiology and pathogenesis

Sciatica is mainly manifested as "lumbar and leg pain", which is often referred to as "sitting buttock wind", "leg and femur wind" and "lumbar and leg pain" in ancient medical books. "It belongs to the category of "paralysis" in Chinese medicine. Su Wen - paralysis on the chapter" will be the main cause of paralysis is summarized as "wind, cold and dampness of the three qi mixed to, combined into paralysis". Chinese medicine believes that its main cause is the deficiency of the liver and kidney for a long time coupled with strain, qi and blood deficiency can not be moistened sinews and veins to the non-glory pain, external wind, cold and dampness invade the human body so that the meridians and tendons and collaterals are damaged, stagnation of qi and blood stasis, and not through the pain. Prof. Wu Lianzhong believes that wind, cold and dampness, dampness, heat and stagnation flow into the foot sun, foot and Shaoyang meridians, resulting in stagnation of qi and blood, not through the pain, leading to the occurrence of this disease ^[5].

Modern medicine believes that compression of L4-S1 nerve roots by herniated intervertebral discs is the main cause of sciatica, and compression of L5 or S1 nerve roots can cause pain from the back or side

of the leg to the foot and toes, and if the L4 nerve root is compressed, the pain will appear in the anterior and lateral thighs [6]. It has also been shown that the pathogenesis of sciatica is related to the infiltration of local inflammatory factors [7], and the inflammatory response induces the body to absorb the local disc herniation, which in turn reduces the compression on the nerve root, which is thought to be the reason why a very small number of patients improve without treatment [8].

3. Single Chinese medicine treatment

3.1. Traditional Chinese Medicine

Sciatica belongs to the category of paralysis, the cause of which is mainly due to the deficiency of liver and kidney and the weakness of qi and blood caused by prolonged labor, and at the same time infected with external wind, cold and dampness, resulting in stagnation of qi and blood stasis, and cold and silt blockage of collaterals. Chinese medicine believes that if the righteousness is weak, then it will be taken away, and if the righteousness is stored inside, then the evil will not be invaded. Therefore, the treatment advocates supporting the positive and dispelling the evil, tonifying the liver and kidney while dispelling wind-dampness, activating blood circulation and relieving pain. Modern medical practitioners often use ancient formulas or summarize clinical prescriptions, and commonly used formulas include Duo Wu Zhansheng Tang, Body Pain and Blood Stasis Tang, Paeoniae Radix et Rhizoma Glycyrrhizae Tang, and Rongjian Tong Palsy Tang. Wang Caijia et al [9] applied Duoju parasitic soup plus Soapwort spines to treat sciatica with reliable efficacy in clinical practice. Ren Hongwei [10] treated 33 cases of sciatica with DuoYu parasitic soup plus flavor, 29 cases of DuoYu parasitic soup plus flavor treatment group showed obvious effect, 3 cases were effective, 1 invalid column, the total effective rate was 96.97%.

Mei Weiqiang et al [11] found that Shujiwei capsule could effectively treat sciatica. Gao Yemei [12] et al. studied and observed Liang Zhiqi's inherited empirical formula Rongjin Tongpang Tang (raw astragalus, angelica sinensis, cinnamon, white peony, raw glycyrrhiza glabra, ripened diaphragm, continued root, waixian hyssop, deer antler pounds, epimedium, antifungus, duhou, henbane, xiangsuo, and wuyao, etc.) in the treatment of 90 patients with liver and kidney deficient sciatica. The observation group was given Rongjin Tongpang Tang to be taken orally, while the control group was given oral administration of loxolophorphan sodium tablets. The difference between the scores of the observation group and the control group was not statistically significant; after treatment, the absolute value of the difference in the VAS and ADL scores of the observation group was higher than that of the control group ($P < 0.05$). The absolute value of the difference in the JOA scores was not statistically significant, and the absolute value of the difference in the scores of the Chinese medicine clinical symptoms of the observation group was higher than that of the control group ($P < 0.01$).

In addition, the external treatment of traditional Chinese medicine also has good efficacy on the pain relief of sciatica, Yang Jin [13] used hot compresses (Liu Shunu, Duhuo, Gentiana, Prepared Chuanwu, Prepared Pseudostemonium, Huangdan, Peppercorns, Aiye, Safflower, and Elongated Cordyceps) to treat the patients with sciatica, the drug will be wrapped in gauze, half a catty of vinegar, mixed, and then steamed in a pot for 30 min, and then externally applied on the lumbar spine (paracordial) points, the ring jump point, Chengshan, and the commission of the middle (the Ah Yes point), twice a day for 30 min, 14 d for a course of treatment.), twice a day, a paste 30 min, 14 d for a course of treatment. Luo Feipeng [14] and others used traditional Chinese medicine beeswax external application therapy for the treatment of radicular sciatica, the total effective rate of the treatment group was 96.3%, significantly higher than the total effective rate of the control group 75.93% ($P < 0.05$), the clinical effect is remarkable..

3.2. Acupuncture treatment

Modern acupuncture treatment of sciatica is based on meridian and localization of acupoints, emphasizing the application of the matching points of this meridian and yang meridian acupoints. One study summarized the relevant literature in the past ten years from 2009-2019 and found that the selection of acupuncture points for the treatment of sciatica is regular: the foot solar bladder meridian and the foot Shaoyang gallbladder meridian are the main ones; the selection of acupuncture points is based on the lower limbs; and the commonly used acupuncture points are, in order, the Huanjiao, the Comptroller, the Yanglingquan, the Chengshan, the Kunlun, the Daigong Yu, the Chibian, the Hangzhong, the Kidney Yu, and the Chengfu [15]. Sheng Nan [16] and others collated the literature and found that the most effective principle of acupuncture points for treating sciatica is to combine distant and nearby acupuncture points, which will be better than purely proximal acupuncture points or purely distal acupuncture points. Xu

Kangyue^[17] and others to meridian theory as the basis for combining modern medical theory, explored the "pain three needle" method of this unique method of treatment, selecting the ring jump, Chibian, buttocks in the three points as the main points, selecting a small number of acupuncture points, refined, specialized, and through acupuncture to regulate the meridian qi and blood, the acupoints with the synergistic effect of acupuncture analgesia. Hong Qiuyang^[18] and other researchers found that Dong's qi points combined with traction acupuncture treatment of sciatica efficacy is better than the conventional acupuncture treatment, the main points of the Ling Bone, Dabai; solar meridian towards the pain plus Biao Biao, Shao-Yang meridian pain plus foot Lin Siu, thigh pain in the inner thigh groin plus Taichong, anterior thigh yangming meridian pain plus Men Jin.

In the treatment of acupuncture and moxibustion there are a variety of needling techniques, and in the clinic, special needling methods are mostly to be used to increase the amount of stimulation and penetration in order to achieve clinical efficacy, such as the Cang Turtle Probing Points, the Dragon and Tiger Engagement, the Pong Needle, the Pong Needle Acupuncture Method, and other classical needling methods^[19]. Zhong^[20] and others selected bilateral Shenwei, Houxi, Gongsun, Neiguan, Fei Linxiao, Waiguan, Liejiao, and Zhaohai points, and then projected the opening time of Houxi and Shenwei in the couple's allotment of Lingguo Bafa by checking the opening table. The results found that Lingguo Bafa acupuncture treatment of sciatica appeared significant analgesic effect in 30min of needle retention, and its immediate analgesic effect and analgesic sustained effect were significantly better than conventional acupuncture. Tan Yuezhu^[21] used Huiyang nine needles (mute gate, laogong, sanyinjiao, chongquan, taixi, zhongkou, huanjiu, ashansuri, hegu) to treat sciatica, which resulted in a total effective rate of 93.33% in the treatment group and 83.3% in the control group, indicating that Huiyang nine needles did have an effect on the therapeutic efficacy ($P < 0.05$).

3.3. Moxibustion treatment

The etiology of sciatica is wind-cold and dampness, resulting in stagnation of qi and blood stasis, cold and silt blockage, and the use of local moxibustion can support yang and benefit qi, and dissipate the cold and relieve pain, so it can achieve good results in clinical practice. Wu Mengmeng^[22] observed the effect of moxibustion on the expression of GAP-43 in the sciatic nerve trunk and the ventral horn of the spinal cord and its neurorestorative effect in primary sciatica rats through experimental research and found that moxibustion at the point of "ring-jump" could improve the function of the sciatic nerve in rats with primary sciatica and may be related to the up-regulation of GAP-43 expression in the ventral horn of the spinal cord and the sciatic trunk and enhance the function of the sciatic nerve. This may be related to the up-regulation of GAP-43 expression in the ventral horn of the spinal cord and sciatic nerve trunk, and the enhancement of sciatic nerve self-repair ability. Based on the theory of heat-sensitive moxibustion, Cai Guowei^[23] and others found that heat-sensitive moxibustion can significantly reduce the serum levels of IL-8 and pain scores of patients in the treatment of sciatica, and the clinical efficacy of heat-sensitive moxibustion is remarkable.

3.4. Tui Na Therapy

Tui na is one of the more effective clinical treatments for sciatica, which achieves pain relief by dredging the meridians, activating blood circulation, removing blood stasis, dispelling wind and dampness, and warming the meridians and dispersing cold through the use of tui na techniques. Some studies have shown that Tui na manipulation can significantly reduce local neuralgia in rats with sciatica model, and has significant analgesic effect, and its mechanism of action may be related to elevating the content of serum analgesic substances, reducing the release of analgesic substances, and increasing the pain threshold of rats^[24]. It was found that tui na pressing and kneading of the huanjiu acupoints had significant analgesic effects on rats in the sciatic nerve chronic compression injury model, and that tui na pressing and kneading of the huanjiu acupoints restored the alignment of the nerve fibers; and increased the PWT, PWL, and SFI in the CCI model by decreasing the expression of the NF- κ B p65 protein in the dorsal horn of the spinal cord, which in turn exerted an analgesic effect, as well as improving the gait in the rats^[25]. Chen Meiren^[26] and others chose Rijin Decompression Tui Na Technique for the treatment of sciatica and observed the changes of 5-HT, PG and Ca²⁺ levels, and the results showed that the concentrations of 5-HT, PG and Ca²⁺ in the peripheral blood of the Rijin Decompression Tui Na Technique group after the treatment had a significant decrease compared with those of the other two observation groups. Chen Fei^[27] et al. reported that 64 patients with lumbar disc herniation iliopsoas pain were treated with loose tendon and orthopedic method, and the results of PRI, VAS, PPI, SE-MPQ and CODI scores of the treatment group were significantly lower than those of the control group ($P < 0.01$),

and the total effective rate of the treatment group was significantly higher than that of the control group ($P < 0.05$), which showed significant clinical efficacy.

4. Combined Chinese medicine treatment

4.1 Needle-medicine combination

Hu Qi^[28] et al. observed 122 patients in the treatment of sciatica due to lumbar disc herniation by acupuncture combined with the addition and subtraction of Duiwei parasitic soup, and found that acupuncture combined with the addition and subtraction of Duiwei parasitic soup could effectively relieve sciatica due to lumbar disc herniation. Ma Yongqing^[29] reported a case of "double yang" (foot solar bladder meridian, foot Shaoyang bile meridian) acupuncture combined with body pain and blood stasis soup for the treatment of sciatica with satisfactory efficacy. Chen Xinxin^[30] reported a case of sciatica treated with a combination of acupuncture and medicine, and was given Jin Gui Ren Qi Pill combined with acupuncture, and the clinical efficacy was satisfactory. Lian Huaying^[31] observed 92 cases of sciatica patients, divided into three groups, the needle and medicine treatment group, Chinese medicine control group and acupuncture control group, and found that in terms of the overall efficacy of the three groups, all three groups were significant, and the efficacy of the needle and medicine treatment group compared with the Chinese medicine control group and the acupuncture control group was significant. Wang Chengxiu^[32] et al. used acupuncture combined with external application of traditional Chinese medicine (lateral cypress leaf, rhubarb, cypress, peppermint, zephyr, yanhuisuo, frankincense, myrrh, gentian macrophyllum, chuanwu, safflower, elongation herb, haifengteng, hyssop) in the treatment of patients with sciatica, and clinical efficacy of the treatment group was better than that of the control group ($P < 0.05$), and the results indicated that the combination of acupuncture combined with external application of traditional Chinese medicine in the treatment of sciatica had a significant therapeutic efficacy.

4.2 Acupuncture combined with tuina

Miao Chong^[33] et al. observed 50 cases of patients with radicular sciatica treated by combining acupuncture therapy and tuina therapy, 32 cases were cured, 11 cases showed significant effect, 7 cases were ineffective, and the total effective rate was 86%, which was satisfactory in terms of clinical efficacy. Shan Baoyu^[34] observed the clinical effect of electroacupuncture combined with tuina manipulation in the treatment of sciatica from the perspective of its clinical effect, and found that electroacupuncture combined with tuina could significantly relieve sciatic nerve pain, and it could significantly reduce the serum levels of MCP-1, IL-6 and TNF- α inflammatory substances. Yin Zuxin^[35] and others believed that sciatica was caused by deficiency of liver and kidney, loss of moistening of tendons and veins, paralysis of qi and blood, and pain when it was impassable and not glorified. And acupuncture and massage can be used to treat sciatica secondary to lumbar disc herniation by tonifying the liver and kidney, promoting qi and blood circulation. Deng Pingping^[36] used warm acupuncture and moxibustion combined with corrective pelvic shift to treat 68 patients with sciatica, the control group was given warm acupuncture and moxibustion treatment, and the observation group was combined with corrective pelvic shift on the basis of the control group. 10d was one course of treatment, and the treatment was for three courses of treatment. The total effective rate of the observation group was 94.12%, higher than 70.59% of the control group, and the difference was statistically significant ($P < 0.05$).

4.3 Traditional Chinese medicine combined with massage

Li Feng^[37] used massage and tuina with traditional Chinese medicine hot compress (20g each of Xinxin, Caowu, Chuanxiong, 50g each of Tao Ren, Boswellia, Saffron, Gui Zhi, Gan Jiang, Ai Ye, Fenghuang, Jing Qi, Sequence of Fructus, Weiling Xian) to treat 68 cases of sciatica, which were randomly divided into a single group and a combined group, with the patients of the single group being treated by massage and tuina and the patients of the combined group being treated by traditional Chinese medicine hot compress on the basis of the treatment, and the clinical effect of the combined group was better than the single group ($P < 0.05$). The clinical effect of the combined group was better than that of the single group ($P < 0.05$). Pan Zhaoguo^[38] took randomized control method to 56 cases of sciatica patients were given kidney with soup treatment, kidney with soup with the commission of point manipulation, the results of the observation group total effective rate of 82.14%, higher than the control group of 53.57% ($P < 0.05$), the therapeutic effect is significant, can improve the therapeutic efficiency,

reduce the patient's Chinese medicine evidence points, has a unique advantage in the treatment of renal deficiency type sciatica. Advantages in the treatment of kidney deficiency type sciatica. Zheng Lei [39] and others summarized that 520 cases of sciatica were treated with external application of He's Duwu Liquid combined with manipulation (rubbing, pushing, dialing, pointing and pressing, and manipulation and traction), and the results showed that there were 352 cases of healing, accounting for 67.76%; 126 cases of apparent effect, accounting for 24.31%; 40 cases of effective, accounting for 7.66%; and 2 cases of ineffective, accounting for 0.27%.

4.4 Multi-method combined therapy

Lai Chun [40] et al. and Guo Ni [41] observed the clinical efficacy of acupuncture and tuina combined with acupoint injection in the treatment of sciatica; Lai Chun used acupuncture and tuina treatment as the control group, and Guo Ni's control group used western medical therapy (oral ibuprofen extended-release capsules for pain relief and vitamin B12 for nerve nutritional treatment), and the result was that the efficacy of the acupuncture and tuina combined with acupoint injection treatment group was significantly better than that of the acupuncture and tuina treatment group and the western medicine treatment group. Liu Xing [42] et al. used acupuncture and tuina combined with acupoint injection to treat 76 cases of sciatica patients, randomly divided into two groups, the treatment group used acupuncture, tuina and acupoint injection therapy, taking the acupoints such as the ring jump and the commission in the middle of the body, and the injection solution was a mixture of shuxu xuning injection, vitamin B12, and 2% lidocaine; the control group was treated with acupuncture and tuina therapy alone. The results of the total effective rate in the treatment group was 92.11% superior to 73.68% in the control group, respectively ($P < 0.05$). Cai Bingbing [43] et al. used water acupuncture combined with traditional Chinese medicine integrated therapy to treat 90 cases of lumbar disc herniation caused by radicular sciatica, and the treatment group was treated with water acupuncture (the mixture of compound betamethasone 1m L, 2% lidocaine hydrochloride 2m L, and methylcobalamin injection 1m L was slowly injected into the acupoints. 1 week once for 1 course of treatment, and the efficacy of the treatment was assessed after 4 weeks of treatment). Combined with bloodletting and cupping, external application of homemade musk paste and internal administration of Chinese herbs. In the control group, only hydrocolon therapy was given. The VAS and ODI scores of the treatment group improved significantly compared with those of the control group ($P < 0.05$), and the total effective rate (91.1%) was higher than that of the control group (75.6%). Wang Zeng [44] reported that 164 cases of sciatica patients were randomly divided into two groups: 82 patients in the experimental group were treated with acupuncture and massage with Chinese herbal medicine and 82 patients in the control group were treated with acupuncture and massage alone, and the total effective rate of the patients in the experimental group was 97.56%, which was significantly higher than that of the patients in the control group, which was 82.93% ($P < 0.05$).

5. Conclusions

To sum up, Chinese medicine therapy has a definite efficacy in treating sciatica, with the advantages of safety, efficacy, low adverse effects and economic benefits, and its advantages have been recognized by more and more people. With the development of modern science and technology, many new technologies and methods have been applied, such as electro-acupuncture, hydro-acupuncture, thermo-acupuncture, infrared irradiation, laser and so on. The application of these new technologies and methods has enriched the treatment means of traditional Chinese medicine, expanded the therapeutic scope and improved the therapeutic effect. Chinese medicine treatment of sciatica emphasizes the overall treatment, from various aspects to better adjust the patient's internal organs, qi and blood meridians, in order to achieve rapid relief of the patient's pain. In recent years, clinical research has found that the combined application of various methods of treatment of sciatica is effective. With the continuous development of modern medicine, integrated therapy will become a trend, the combined application of Chinese medicine and how it can be integrated with modern medicine, multiple methods used in conjunction with each other to further improve the efficacy of treatment is a problem that needs to be further solved.

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