

Research Progress on Traditional Chinese Medicine Treatment of Ankylosing Spondylitis

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Abstract: In order to provide reference for the treatment of ankylosing spondylitis in traditional Chinese medicine. We used the method of literature review to elaborate on the research progress in the treatment of ankylosing spondylitis by using both internal and external traditional Chinese medicine and traditional Chinese medicine characteristic therapies in recent years. Resultly, the curative effect of internal and external use of traditional Chinese medicine and traditional Chinese medicine characteristic therapy in the treatment of AS was significant. The treatment methods are diverse and can be flexibly selected, and the quality of life of patients can be significantly improved. However, the etiology of the disease is not yet clear, and there is no uniform standard for syndrome differentiation. In the future, we should strengthen the standardization of syndrome classification, strengthen the study of etiology, make the treatment of traditional Chinese medicine more standardized, and better solve the patient 's pain from the etiology.

1. Introduction

Ankylosing spondylitis (AS) is a chronic autoimmune disease that mainly invades sacroiliac joints, spines, peripheral joints, and soft tissues such as nearby tendons and ligaments. Fibrosis and calcification can occur after inflammation of the disease, causing the spine to gradually lose its softness. In the later stage, it can develop to be like a "bamboo joint", causing the spine to be unable to bend or stretch, resulting in a decline in quality of life, as shown in Figure 1 and Figure 2. The etiology of AS may be caused by a combination of genetic, microbial, smoking and other lifestyle factors [1]. However, the causes and mechanisms of its pathogenesis are still being studied and explored, and accurate answers cannot be obtained. At present, there is no treatment that can cure AS.

At present, the treatment of AS in the direction of Western medicine mainly uses biological agents, hormones, non-steroidal anti-inflammatory drugs to improve the condition and relieve the clinical symptoms of patients, but there are many adverse reactions after long-term application [2]. The treatment of AS in traditional Chinese medicine is based on syndrome differentiation and treatment, which has a unique effect on the disease. It not only improves the clinical symptoms of patients, improves the quality of life, relieves pain, delays the development of the disease, but also has fewer

side effects. This study will summarize the different schemes and progress of traditional Chinese medicine in the treatment of ankylosing spondylitis in recent years.

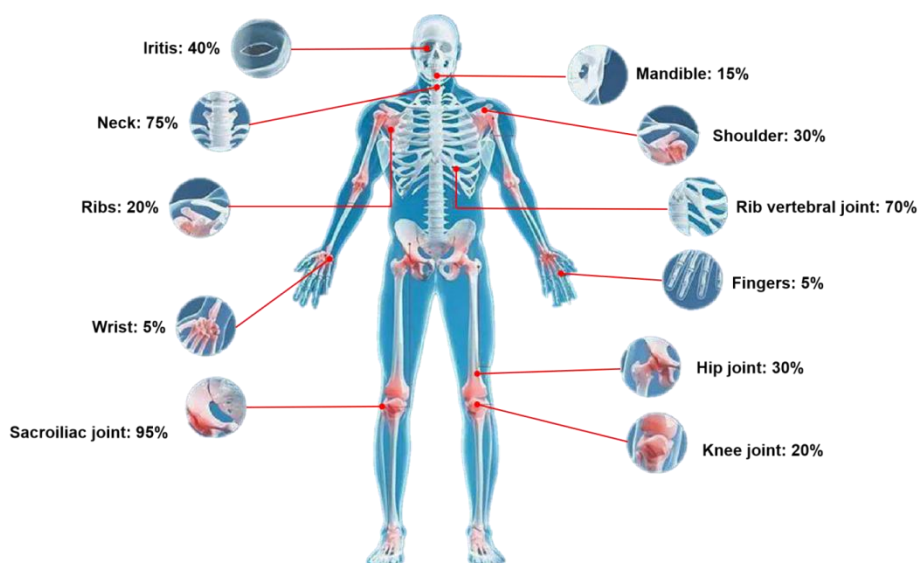


Figure 1: Affected area of AS

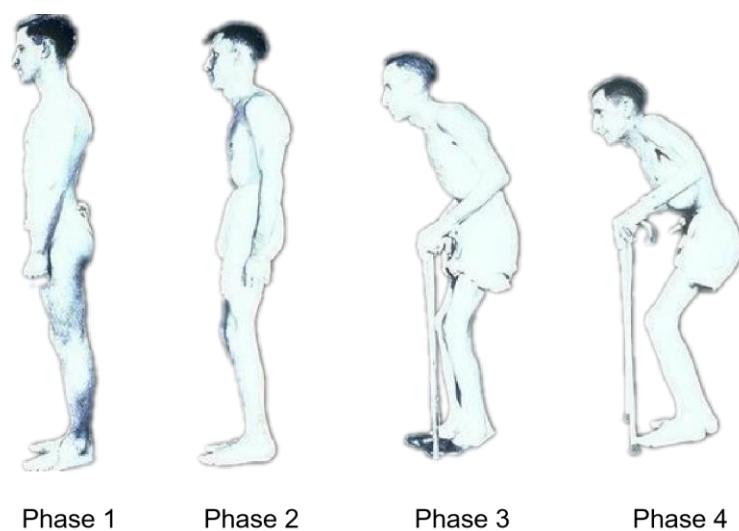


Figure 2: The development phase of AS

2. Etiology and pathogenesis

In traditional Chinese medicine, AS belongs to the categories of " arthralgia syndrome ", " spinal arthralgia ", " bamboo joint apoplexy ", " Megarachitis " and so on. Because there is no unified standard for etiology and pathogenesis, the treatment ideas of traditional Chinese medicine are diverse, and each doctor has different unique views and treatment plans on the syndrome differentiation of the disease. As stated in "Su Wen -Gu Kong Lun Chapter 60", "The governor"s meridian is a disease, and the spine is strong and reflexive. The "Mai Jing" describes: "All sizes are floating, straight up and down, this is the governor"s pulse. The waist and back have strong pain, and one should not tilt up. The "Su Wen Bi Lun Pian" states: "Those with kidney Bi are good at swelling, with the buttocks replacing the heel and the spine replacing the head. All in line with the clinical characteristics of AS.

Jiao Shude[3] believed that the internal cause of this disease was the deficiency of both kidney and governor vessel, the disorder of opening and closing of yang qi, and the external cause was mostly caused by the invasion of cold evil. They also believed that AS belonged to Megarachitis in the "Huangdi Neijing". The key pathogenesis was the deficiency of both kidney and governor vessel, the combination of internal and external evils, resulting in the onset of the disease. Qiu Sheng [4] believes that AS is caused by congenital endowment deficiency, liver and kidney deficiency, combined with wind, cold and dampness evil invasion, meridian stasis, causing limb joint acid trapped, urgent, flexion and extension. Wen Junmao et al. [5] also think so, and believed that AS was divided into kidney and governor vessel deficiency syndrome, yin deficiency and blood heat syndrome and phlegm and blood stasis syndrome. Qiu Xingfeng et al. [6] believed that the pathogenesis of AS is deficiency in origin and excess in superficiality. The treatment is mainly to strengthen the healthy, and the disease is Inviolability healthy body. Also, the kidney is the congenital origin, and the spleen is the acquired origin. So AS is most closely related to kidney and spleen. Under the basic pathogenesis of kidney and governor vessel deficiency, we should also pay attention to the key role of spleen deficiency in the disease, and divide AS into kidney and governor vessel deficiency and cold syndrome and spleen deficiency and dampness syndrome. In summary, the author believes that AS is mostly caused by kidney deficiency combined with wind, cold and dampness. Therefore, syndrome differentiation is mostly treated from kidney and governor vessel deficiency and cold, liver and kidney deficiency, cold and dampness obstruction, phlegm and blood stasis block. Clinical practice is ever-changing, and the treatment methods vary.

3. Traditional Chinese medicine treatment

3.1. Oral administration of Chinese medicine

Clinically, in addition to the pain and stiffness of the sacroiliac joint and spine, and even the inability to bend or stretch, AS patients are often accompanied by symptoms such as soreness and weakness of the waist and knees, poor activity, or dizziness and tinnitus, or chills, cold back, or dark complexion, chest tightness and phlegm. According to the different accompanying symptoms, there are some differences in the syndrome differentiation and treatment of major doctors in clinical practice, but generally there is a relatively unified understanding of its etiology and pathogenesis.

When Wu Shengyuan [7] treated AS of liver and kidney deficiency type, he subdivided it into partial yin deficiency and partial yang deficiency. Partial Yin deficiency is based on Zuo Gui Yin Decoction as the basic prescription for addition and subtraction. Medication: Rehmannia glutinosa, Cornus officinalis, Cuscuta chinensis, Lycii Fructus, Yam, Dipsacus asper, Eucommia ulmoides, Drynaria, Psoraleae Fructus, Tortoise shell, Achyranthes bidentata, Tougucao, Trachelospermum Caulis. If partial yang deficiency, the prescription is modified with You Gui Yin Decoction: aconite, cassia twig, prepared rehmannia root, antler glue, yam, cornus officinalis, medlar, dodder, spatholobus stem, eucommia ulmoides, psoralen, drynaria, morinda officinalis, notopterygium, angelica, obtain good curative effect. Starting from the treatment of liver and kidney, Fang Dingya [8] treats spasmolysis and soothing tendons, clearing liver and cooling blood as the method, and uses Jie Jing Shu Du Tang Decoction as the base. The application of modified addition and subtraction is more inclined to attack and tonify. While tonifying liver and kidney, it clears liver and softens liver, making the curative effect significant. When treating AS of phlegm and blood stasis block type, Wu Shengyuan [7] treated it with the method of promoting blood circulation and removing blood stasis, resolving phlegm and dredging collaterals, and modified it with Qiangji Fang Decoction as the basic prescription, which had a good therapeutic effect. Lou Duofeng [9] created No. 2 Qiangjining Tang Decoction, which is suitable for tonifying kidney and strengthening governor vessel, nourishing blood and softening tendons, promoting blood circulation and removing blood stasis. It has good curative

effect in the treatment of AS with kidney deficiency and blood stasis, and can obviously relieve pain. For ankylosing spondylitis of kidney and governor vessel deficiency and cold type, Yan Xiaoping [10-11] believes that when the disease develops to the stage of ankylosis, the treatment direction should be to tonify the kidney and strengthen the governor vessel, strengthen the bones and tendons, and activate the collaterals and joints. Yan Xiaoping used dog spine, Sichuan duduan, mulberry parasitism, and deer antler cream to nourish Kidney-essence, and used *Ramulus cinnamomi* and *radix paeoniae rubra* to harmonize ying-qi and wei-qi, keeping positive qi in the body and prevent evil qi from invading. In addition, Kudzu root, Shenjin grass, Qingfengteng, *Siegesbeckia herb*, Sangzhi, *Gentiana macrophylla*, Qianghuo, Duhuo, Xuchangqing, Fangfeng were used to dispel rheumatism and relieve pain, prevent and slow down bone and joint damage, and improve functional activity. The main idea is to treat the disease before it occurs, so Yan Xiaoping added fried *Fructus Aurantii* and Turmeric to promote Qi, and used dried tangerine peel to protect the spleen and stomach. In the treatment of AS of cold-dampness obstruction type, Lin Zhehui [12] used Yanghe Decoction, which had a significant effect on activity index, functional index and specific immunoglobulin G index. For the same syndrome type, Wu Shengyuan [7] often used Fuzi Guizhi Decoction, with the method of warming yang and dispelling cold, removing dampness and dredging collaterals, so that the pain and stiffness symptoms of patients were significantly improved.

3.2. Herbal fumigation

Traditional Chinese medicine fumigation treatment is based on the dialectical treatment of traditional Chinese medicine, the selection of traditional Chinese medicine formula, the composition of the fumigation prescription, after boiling, with hot steam fumigation of the patient's treatment site of a kind of external treatment. Through drugs and heat to improve the patient's symptoms caused by poor circulation, in order to achieve the role of promoting blood circulation and relieving pain. Yang Guodong and Xiao Zhiqian [13] randomly divided 120 patients with AS into a study group of 60 cases and a control group of 60 cases. The control group was given routine western medicine treatment, oral administration of Sulfasalazine Enteric-coated Tablets + Celecoxib Capsules; the study group was treated with traditional Chinese medicine fumigation combined with acupuncture and moxibustion. Traditional Chinese medicine fumigation prescription: *Poria*, *Chuanxiong*, *Morinda officinalis*, *Clematis*, *Epimedium*, *Safflower*, *Cortex Phellodendri*, *Ramulus Cinnamomi*, *Radix Aconiti Lateralis Preparata*, *Rhizoma Corydalis*. Warm acupuncture acupuncture point selection: Jiaji point, Ganshu point, Shenshu point, Dazhu point, Dazhu point. After 8 weeks of continuous treatment, the total effective rate of the control group was 85.00 %, and the total effective rate of the study group was 96.67 %. Zhu Feng et al [14] observed the curative effect of traditional Chinese medicine fumigation combined with Bushen Qiangdu Decoction in the treatment of ankylosing spondylitis of kidney deficiency and cold type. 72 AS patients were randomly divided into experimental group and control group, 36 cases in each group. The experimental group was treated with traditional Chinese medicine fumigation (Hanbi Waiyong Decoction: *Chuanwu*, *Guizhi*, *Xudian*, *Duzhong*, *Niuxi*, *Sangjisheng*, *Weilingxian*, *Duhuo*, *Qinjiao*, *Fangfeng*, *Qingfengteng*) combined with Bushen Qiangdu Decoction (*Shudihuang*, *Yinyanghuo*, *Gouji*, *Lujiaopian*, *Duzhong*, *Gusuibu*, *Buguzhi*, *Qianghuo*, *Duhuo*, *Guizhi*, *Xudian*). The control group was treated with oral administration of Bushen Qiangdu Decoction. After treatment, 34 cases were actually enrolled in the control group, with a total effective rate of 58.82 %. In the experimental group, 35 cases, the total effective rate was 82.86 %. The results showed that the improvement of TCM syndromes in the experimental group was better than that in the control group, which could effectively relieve symptoms such as spinal pain.

3.3. External application of traditional Chinese medicine

Huang Fangfang [15] observed the curative effect of Sanjiu acupoint application combined with oral administration of traditional Chinese medicine in the treatment of AS. 145 AS patients were randomly divided into treatment group (75 cases) and control group (70 cases). The combined treatment group was given Qingre Qiangji Decoction or Bushen Qiangji Decoction orally, combined with Sanjiu acupoint application; the control group was given Qingre Qiangji Decoction or Bushen Qiangji Decoction orally. After 30 days of treatment, the total effective rate of TCM syndromes in the combined treatment group was 66.0 %, and that in the control group was 33.3 %, the difference between the two groups was statistically significant ($P < 0.05$). Zhao Yuling, Yuan Li [16] randomly divided 96 patients with AS into treatment group and control group, 48 cases in each group, the treatment group in the control group on the basis of the addition of Shiluozi Wanbi Decoction (Dill Seed, raw Aconitum, raw Arisaema, Cinnamon, Asarum, Clematis, Papaya, Tougucao, Extensor, Frankincense, Myrrh, Ligusticum, Safflower) topical external application, the control group was given oral administration of sulfasalazine pyridine tablets and celecoxib capsules. After 4 weeks of treatment, the clinical effective rate of the treatment group was 66.67 %, which was higher than 50.00 % of the control group.

4. Traditional Chinese medicine characteristic therapy

4.1. Acupuncture therapy

Acupuncture therapy is a very common treatment method in clinical practice of traditional Chinese medicine. It is a method of treating diseases by using specific needles and certain techniques to stimulate acupoints. The lesions of AS are mainly caused by inflammatory changes at the tendon attachment points of spinal joints, resulting in pain, stiffness and other symptoms. With the development of the times and the progress of science and technology, its treatment methods are also advancing with the times. In addition to traditional acupuncture, electroacupuncture, small needle knife, acupoint injection and other treatment methods have been added, which are widely used in clinical practice and have a positive effect.

Fu Wenbin [17] believes that AS is a bone and joint disease, and its location is in the bones. The treatment of this disease starts from the "pain syndrome", and the principle of "treatment from the heart and gallbladder" is created. The acupoints of Neiguan, Shenmen, Xinshu, Danshu, Yanglingquan and Juegu are often taken. On this basis, Baihui, Yintang and Shuigou were selected as the main acupoints for regulating spirit, focusing on the concept that regulating spirit is necessary for treating diseases. Yinjiao, Shuifen and Shuangtianshu are selected as the four abdominal needles. The combination of the four acupoints plays the role of smoothing joints, regulating qi and blood, and dredging meridians and regulating qi. Combined with clinical experience, we can grasp the treatment direction of the disease as a whole, treat both the symptoms and the root causes, so as to achieve the effect of relieving pain, and the curative effect is definite. Shi Wencai et al. [18] randomly divided 90 patients with AS into three groups, 30 cases in each group. The control group was treated with oral sulfasalazine tablets. In addition to oral sulfasalazine tablets, the traditional Chinese medicine group was treated with Huangqi Guizhi Wuwu Decoction combined with Xuefu Zhuyu Decoction (Huangqi, Dilong, Baishao, Danggui, Taoren, Chuanxiong, Chishao, Guizhi, Shengjiang, Honghua, Quanxie, Wugong, Dazao), lumbosacral pain plus Sangjisheng, Xuduan, Yanhusuo, Qi deficiency plus Huangqi; in addition to the treatment of the traditional Chinese medicine group, the combined group was also treated with acupuncture and moxibustion. The main points were selected: Huatuo Jiaji points of neck 1-lumbar 5, and the matching points were selected: Ganshu, Shenshu, Dazhu, Dazhui. After 2 months of treatment, 18 cases were effective in the control group, with a total

effective rate of 60.00 %. The Chinese medicine group was effective in 25 cases, and the total effective rate was 83.33 %. The combined group was effective in 28 cases, and the total effective rate was 93.33 %. The results showed that traditional Chinese medicine decoction combined with acupuncture and moxibustion in the treatment of early ankylosing spondylitis can significantly improve the clinical efficacy and significantly reduce the incidence of adverse reactions.

4.2. Moxibustion therapy

Moxibustion therapy uses moxa-based moxibustion materials to achieve the method of preventing and treating diseases by burning specific parts or acupoints of the human body [19]. The method was originally mostly direct moxibustion. Nowadays, a variety of moxibustion methods have been developed, such as moxa stick moxibustion, warm acupuncture and moxibustion, indirect moxibustion, etc. It is widely used in combination with other treatment methods in clinical practice and has a good effect.

Ning Xiaojun [20] randomly divided 70 patients with AS into treatment group and control group, 35 cases in each group. The control group was treated with acupuncture and moxibustion. Acupuncture points: Zhiyang, Dazhui, Yaoyangguan, Mingmen, Danshu, Ganshu, Weishu, Pishu, Shenshu; the treatment group was treated with Wenyang Tongdu and Sanhan Chushi decoction, Du moxibustion and traditional Chinese medicine decoction. The prescription: prepared aconite, chuanniuxi, chuanbixie, atracylodes, cassia twig, dried ginger, white mustard, chuanshanlong, zhigancao, baishao, ephedra, alisma, raw coix seed, soil poria cocos, angelica. After 14 days of observation and comparison, 26 cases were effective in the control group, with a total effective rate of 74.29 %. The treatment group was effective in 33 cases, the total effective rate was 94.29 %. The results showed that acupuncture combined with Wenyang Tongdu and Sanhan Chushi decoction for AS patients could effectively improve the therapeutic effect, reduce the level of inflammatory factors, and had fewer adverse reactions, which was safe and reliable. Wang Qinjian [21] used warm acupuncture and moxibustion combined with Congrong Duhuosan to treat 92 patients with ankylosing spondylitis of kidney-yang deficiency type. Congrong Duhuosan is composed of Cistanche, Duhuo, Fuzi, Shujiao, Alisma, Astragalus, Schisandra, Tribulus, Saposhnikovia, Armeniaca Semen Amarum, Radix Aucklandiae, Rhizoma Zingiberis (Pao), Oyster, Chishizhi, Radix Scutellariae, Radix Glycyrrhizae, Ramulus Cinnamomi, Semen Persicae, Asarum, Dipsacus. According to the disease syndrome: Cistanche and Astragalus are added to those with more kidney-yang deficiency; if the pain is even worse, live alone; wet evil heavier plus Alisma. Warm acupuncture point selection: Jiaji points, Yaoshu, Dazhui, Changqiang, Xuanshu, Jizhong as the main points, the center, Zhiyang, Lingtai, Baihui, Qianding, fontanelle will be the matching points. After 63 days of treatment, 39 cases were markedly effective, 40 cases were effective, 13 cases were ineffective, and the total effective rate was 85.87 %.

4.3. Massage therapy

Massage therapy is a natural therapy of traditional Chinese medicine for the patient's body surface and specific acupoints by using the methods of pushing, holding, pressing, rubbing, point and patting, so as to achieve the purpose of dredging meridians and collaterals, promoting qi and blood, and harmonizing yin and yang. Jia Jun, Sha Mingbo [22] randomly divided 60 patients with AS into treatment group and control group, 30 cases in each group. The control group was treated with sulfasalazine enteric-coated tablets orally, and the treatment group was treated with Bushen Tongdu massage on the basis of oral sulfasalazine enteric-coated tablets. 7d as a course of treatment, respectively, in the treatment of 2 courses and 4 courses of treatment were compared between the two groups, the results showed that the treatment group were better than the control group, Bushen

Tongdu massage treatment of ankylosing spondylitis clear effect. Zhao Jingjun, Lu Guoqing [23] used massage combined with acupuncture to treat 36 patients with AS. The selected acupuncture points included Dazhui, Zhiyang, Jinsuo, Jizhong, Mingmen, Yaoyangguan, Huantiao, Houxi and Huatuo Jiaji and other acupoints corresponding to the location of the lesion. As for massage technique, Zhao Jingjun firstly used the palm root massage method to massage the erector spinae muscles on both sides, and relaxed muscles. Then used the thumb point massage method to perform the operation along the two lines of the Du meridian and bladder meridian, combined with hair removal, kneading, waist diagonal pulling, and tissue techniques in addition. The results confirmed that massage combined with acupuncture has a good effect in the treatment of ankylosing spondylitis.

5. Summary

Nowadays, with the rapid economic development, people's requirements for life are not limited to eating and wearing warm, and they begin to have more and clearer pursuits to improve the quality of life. For AS patients, Western medicine treatment is limited, and the side effects are large, not long-term use. The conservative treatment of traditional Chinese medicine is more, the side effects of treatment are small, the safety is high, and it can be combined in a variety of ways to increase the efficacy, relieve the pain of patients and improve the quality of life of patients. Through the overall diagnosis and treatment, syndrome differentiation, different treatment of the same disease, combined with each patient's own physique, etc., to give a more targeted treatment plan. This is the obvious advantage of traditional Chinese medicine in the treatment of ankylosing spondylitis. However, at present, there is no unified standard for the etiology, pathogenesis and dialectical classification of the disease, and the number of research experiments on its clinical treatment is not large and the depth is not enough. Therefore, we should give full play to the advantages of traditional Chinese medicine treatment in clinical practice, strengthen the expansion and application of physical and chemical examination in experimental research, and show the effect of traditional Chinese medicine treatment more objectively and more specifically. In addition, we should increase the standardized research on AS disease differentiation and classification, clarify the pathogenesis, and unify the classification criteria, which is more conducive to pushing China's traditional Chinese medicine treatment onto the international stage.

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