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Clinical Research Progress of Traditional Chinese Medicine in the Treatment of Female Stress Urinary Incontinence

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Abstract: Stress urinary incontinence (SUI) is a common disease in women. Traditional Chinese medicine has the advantages of significant efficacy, safety and few adverse reactions in the treatment of SUI. Traditional Chinese medicine treatment methods include acupuncture, moxibustion, massage and traditional Chinese medicine, which have been clinically proved to be effective in improving symptoms. However, there is a lack of standardized programs at present, and the mechanism of action remains to be clarified.

1. Introduction

Stress urinary incontinence (SUI) refers to the involuntary outflow of urine from the urethral orifice under the condition of increasing abdominal pressure such as coughing, sneezing, laughing or strenuous exercise. SUI has a high incidence in the world. The prevalence of SUI in Chinese women is as high as 18. 9%, and the most common age of onset is between 50 and 59 years old, with a prevalence of 28%[1]. SUI seriously affects the quality of life and mental health of women, and has become a common health problem. Some scholars have shown that [2], although the incidence of SUI is high, only 9% women in our country seek treatment. The psychological damage caused by SUI makes many patients ashamed to seek medical treatment. Therefore, the popularization of SUI treatment awareness has become an urgent requirement. At present, there are two types of treatment for SUI: surgical treatment and non-surgical treatment. The International Expert Committee on Urinary Incontinence first recommends that patients choose non-surgical treatment. Non-surgical treatment has the advantages of less risk and less complications, which can effectively reduce the symptoms of urinary incontinence and is more easily accepted by patients [1]. The treatment of stress urinary incontinence with traditional Chinese medicine has the advantages of significant clinical efficacy, simple and easy treatment, and fewer adverse reactions. This article reviews the treatment of stress urinary incontinence with traditional Chinese medicine as follows.

2. Understanding of the etiology and pathogenesis of SUI by traditional Chinese medicine

"Su Wen ·Cough theory" cloud: "bladder cough, cough will be drowned. " In Lingshu ·Nine Needles (Miraculous Pivot), it says, "If the bladder is not about, it will drown. If the water spring is not stopped, it will not hide. " "Su Wen ·Ling Lan Mi Dian Lun" said: "The bladder, the official of the state, body fluid hidden Yan. " It is discussed that the excretion of urine depends on the retention of bladder qi and the regulation of bladder pneumatization. Xuanming Five qi (The Xuan Ming Five Qi of Plain Questions) also expounds the view that "long is caused by bladder obstruction, but enuresis is not caused by bladder obstruction". "Tai Ping Sheng Hui Fang Zhi Enuresis Various prescriptions" said: "Husband enuresis, this by the bladder faint cold, can not be restricted in the water"; According to the "Zhu bing Yuan hou Lun", "those who cannot help urinating are deficient in kidney qi, and the lower jiao is cold. Kidney main water, its qi under the Yin. Kidney deficiency scorched cold, can not warm its water, so urination can not help. " Chao Yuan Fang believed that the deficiency of kidney qi and kidney Yang caused by the deficiency of lower jiao and cold water was the fundamental pathogenesis of urination without help, and further demonstrated the view that the unstable urination caused by the deficiency of bladder and cold. Jin GUI Yi: Urine and Urine Can not Help but put forward that "If there is deficiency of spleen and lung qi, and disease cannot be prevented because the waterway cannot be restrained, Jin GUI called the deficiency of upper can not control the lower. " Deficiency of lung-spleen qi is also considered as the pathogenesis of urinary incontinence. In modern studies, Lu Yonghui et al. discussed[3] the relationship between lung and bladder in the pathogenesis of stress urinary incontinence, and proposed that the TCM disease name of stress urinary incontinence could be standardized as "cough with drowning", "cough with enuresis" and "cough with leakage of urine". Zhou Yanyan [4] et al. proposed the imbalance of qi and blood as the basic pathogenesis of stress urinary incontinence according to the physiological characteristics of women and the symptoms and pathogenesis of stress urinary incontinence. Deficiency of kidney Yang, deficiency and cold of lower jiao and adverse bladder restraint are the basic pathogenesis of stress urinary incontinence. Other factors such as deficiency of lung and spleen, incongruence of qi and blood, congestion in the bladder, and the postpartum injury in the bladder bladder can also lead to stress urinary incontinence.

3. TCM treatment and efficacy of SUI

3.1. Acupuncture treatment

3.1.1. Electroacupuncture treatment

Tang Kangmin [5] et al. selected 304 patients and divided them into observation group and control group by randomized controlled study method. The observation group was treated with pelvic floor muscle training combined with electroacupuncture, and the control group was treated with pelvic floor muscle training combined with sham electroacupuncture. Ea and sham EA were applied to bilateral Huiyang points and Zhongliao points, respectively. Pelvic floor muscle training was carried out in the morning, middle and evening every day. Ea and sham EA were given once a week for 8 weeks, a total of 24 times. One hour pad test and ICI-Q-SF were used as observation indicators at the end of the treatment cycle. The results of this study showed that compared with pelvic floor muscle training combined with sham electroacupuncture, pelvic floor muscle training combined with electroacupuncture had less urine leakage and higher improvement rate for SUI. In the follow-up of 30 weeks, pelvic floor muscle rehabilitation training combined with electroacupuncture still maintained good effect on SUI, which further proved the effectiveness of electroacupuncture in the treatment of SUI. Su Tongsheng [6] et al. included 296 patients in a randomized controlled study and

divided them into two groups. The patients in the treatment group were treated with electroacupuncture at Huiyang (double acupoints) and Zhongliao (double acupoints), and the acupoints were oblique needled for 50-60 mm. The electroacupuncture parameters were continuous wave, frequency 50Hz, current intensity 1-5 mA, and the current intensity was gradually increased to the patient's tolerance. The control group was treated with pelvic floor muscle training for 15min each time, 3 times a week, every other day, and each time was divided into 3 periods: early, middle and late. Both groups were treated for 8 weeks, a total of 24 times, and the treatment cycle was finished. All patients were followed up for 32 weeks. In this study, we collected the data of the average number of urinary incontinence in 24 hours, the degree of urine leakage, the reduction of urine leakage and ICI-Q-SF questionnaire before and after treatment, and concluded that electroacupuncture had a significant effect on the improvement of urinary incontinence symptoms in patients with SUI, and the effect of electroacupuncture on SUI was better than that of pelvic floor muscle training.

3.1.2. Elongated needle treatment

Wang Zichen [7] et al. included 100 female SUI patients and randomly divided them into two groups. The treatment group was treated with elongated needle combined with pelvic floor muscle training. Acupuncture was applied to Ciliao (BL 32), Zhongji (CV 3) and Sanyinjiao (SP 6), and the control group was treated with pelvic floor muscle training. Both groups were treated 5 times a week for 4 weeks. The results showed that the clinical efficacy of the treatment group was significantly better than that of the control group, which further proved the effectiveness of the long needle in the treatment of SUI. As long as the operation is carried out strictly in accordance with the standard [8], elongated needle treatment of SUI is safe, reliable and simple. Zhao Xiaokang [9] et al. randomly divided 63 elderly female patients with SUI into groups. The patients in the observation group were treated with elongated needle intermittent wave alternately, and selected "abdominal four points and sacral four points" acupuncture. The control group was treated with ordinary EA, and acupuncture was applied to Qihai (CV 6), Guanyuan (CV 4), Zhongji (CV 3), Qugu (CV 4), Sanyinjiao (bilateral), Zusanli (bilateral), Bladshu (bilateral), Ciliao (bilateral) and Huiyang (bilateral). At the end of the treatment period, ICIQ-SF score and urine leakage volume in 1h pad test were compared between the two groups, and the observation group was better than the control group. The authors believe that elongated needle can strongly stimulate the nerves and the muscle groups innervated by the elongated needle, and combine with intermittent wave altercountry, make the muscles move passively so as to improve SUI. Furthermore, it is proved that alternating acupuncture with elongated needle at "abdominal four points and sacral four points" has a significant effect on stress urinary incontinence in elderly women.

3.1.3. Fu's subcutaneous needling therapy

Li Kang [10] et al. treated 25 patients with SUI with Fu's acupuncture. The adductor femoris muscle group, the lower segment of rectus abdominis muscle and the lower segment of rectus abdominis muscle were selected, and the method of sweeping and scattering and reperfusion were often adopted to enhance the curative effect. The treatments were given every other day for a total of six times. The total effective rate of this treatment was 80%, and the curative effect was stable 2 months after the end of treatment. Studies have shown that Fu's subcutaneous needling has obvious clinical effect on stress urinary incontinence and good long-term effect. The authors believe that Fu's Fu's acupuncture can make the patient's muscles perform repeated contraction and relaxation movements, accelerate the blood flow velocity in the affected muscles, improve the condition of muscle ischemia and hypoxia, so as to achieve the effect of relieving the symptoms of SUI. Chen Huijie [11] et al. recruited 60 patients and divided them into treatment group, control group 1 and

control group 2. Fu's Fu's acupuncture combined with pelvic floor muscle training, simple pelvic floor muscle training and pelvic floor muscle training combined with ordinary acupuncture were given respectively. The three groups were treated 6 times a week for 4 consecutive weeks, a total of 24 times. By comparing the results of 1h urine pad test, ICI-Q-SF and pelvic floor muscle strength test, the results showed that Fu's Fu's acupuncture combined with basin training was significantly better than that of pelvic floor muscle training alone and pelvic floor muscle training combined with ordinary acupuncture. Fu's Fu's acupuncture in the treatment of SUI has obvious clinical effect and high clinical promotion value.

3.2. Other treatments

3.2.1. Moxibustion therapy

Hu Dan [12] et al. divided 45 female patients with stress urinary incontinence into two groups in a randomized controlled manner. The treatment group and the control group were both treated with pelvic floor muscle training. On the basis of the treatment, the treatment group was treated with heat-sensitive moxibustion at Zhongji (CV 3), Qihai (CV 6), Ciliao (BL 32) and Shenshu (BL 23). The symptom scores of h pad test and ICIQ-SF in the treatment group were better than those in the control group. The study shows that heat-sensitive moxibustion combined with pelvic floor muscle training is superior to simple pelvic floor muscle training in the treatment of female SUI, and heat-sensitive moxibustion is feasible in the treatment of SUI. The authors believe that heat-sensitive moxibustion therapy can stimulate the meridian sensory transmission, warm qi and blood, promote the repair of urethral sphincter and bladder neck muscle, so as to achieve the purpose of improving SUI symptoms. Zang Xiaoming [13] et al. included 72 female patients with stress urinary incontinence and were randomly divided into control group and experimental group. The control group and the experimental group were both treated with pelvic floor muscle training, and the experimental group was combined with ginger-spread moxibustion with vein. The urine leakage volume in 1 hour pad test, the average urine leakage frequency in 24 hours and ICI-QSF score were compared. The results showed that the total effective rate of the experimental group was 87.50%, which was significantly better than 65.63% of the control group. Ginger-spread moxibustion with vein combined with pelvic floor muscle training is effective, safe and feasible in the treatment of SUI. The authors believe that the ginger-spread moxibustion with vein can be adjusted from the whole, pay attention to the same treatment of specimens, conform to the holistic concept of traditional Chinese medicine treatment and the thought of syndrome differentiation and treatment. As an effective conservative treatment method in clinical treatment, it is worthy of promotion.

3.2.2. Massage therapy

Zheng Qingshan [14] et al. included 80 patients with SUI, who were treated with massage in the lumbosacral region, abdomen and lower limbs, and the main methods were kneading, point pressing and tremor. The treatment was given once every other day for a total of 30 times. One hour pad test, pelvic floor muscle contraction index and ICI-Q-SF were used as observation indexes after the treatment. The results showed that the total effective rate was 95.0%, suggesting that the pelvic floor muscle contraction of the patients had been significantly improved. The authors believe that tuina manipulation in the lumbosacral region of SUI patients can provide a certain amount of lumbosacral nerve stimulation to stabilize the detrusor and enhance the urethral sphincter tension, thereby reducing urine leakage. Massage is effective and feasible in the treatment of SUI. Ji Ning [15] et al selected 70 SUI patients and divided them into control group and intervention group. The control group was treated with routine treatment, and the intervention group was treated with tuina therapy on the

lumbosacral region on the basis of routine treatment. The total effective rate of the intervention group (94.3%) was better than that of the control group (80%). Studies have shown that massage therapy has a significant effect on the improvement of symptoms in patients with SUI, and the same effect on the long-term prognosis. The authors believe that tuina therapy can stimulate the lumbosacral nerve and inhibit the urinary muscle, so as to play a role in treating stress urinary incontinence.

3.2.3. Traditional Chinese Medicine treatment

Zhao Yan [16] included 80 female patients and randomly divided them into observation group and control group. The control group was treated with pelvic floor muscle training, and the observation group was treated with traditional Chinese medicine combined with pelvic floor muscle training. The composition of traditional Chinese medicine formula includes: Astragalus membranaceus, cherry fructus and chebula 30g each, Codonopsis radix and yam 20g each, raw Atractylodes atractylodes, Angelica sinensis, Fructus aurantii, cornus officinalis, Fructus fructus, raw Radix paeoniae alba, raspberry, dipsacus 15g each, white hemorrhoid, cohodophyma, Radix aconiti 10g each, fried licorice 6g each. Decocted with water, 1 dose daily, for 2 weeks. After the treatment, urodynamic parameters and 24-hour pad test were compared between the two groups after treatment. Data analysis showed that the total effective rate of the observation group was 95. 0%, which was significantly better than 77.5% of the control group. The authors believe that the combination of the drugs in this prescription can play the functions of tonifying the kidney, strengthening the spleen and soothing the liver, so that the body fluid distribution can be improved frequently to achieve the effect of treating SUI. Zheng Shuxin [17] et al. screened 93 female SUI patients with spleen and kidney qi deficiency syndrome based on TCM syndrome differentiation and randomly divided them into physical therapy group, traditional Chinese medicine group and combination group. The patients in the physiotherapy group were treated with biofeedback electrical stimulation and MLD B4S pelvic floor rehabilitation therapeutic apparatus. The patients in the traditional Chinese medicine group were treated with self-made Bushen Gu decoction inside the bladder. The number of urine leakage and TCM syndrome score within 24 hours after the end of the treatment cycle were evaluated according to the "Guiding Principles for Clinical Research of New Chinese Medicine [18] and ICIQ-SF. Statistical analysis showed that the curative effect of the combination group and the traditional Chinese medicine group was better than that of the physical therapy group, and the combination group had the best curative effect. The authors believe that the combination of all the medicines inside the bladder capsule and the biofeedback electrical stimulation therapy can effectively relieve SUI symptoms by strengthening kidney qi, regulating temperament, retaining bladder intake, and stimulating pelvic floor muscle contraction.

3.2.4. Acupoint catgut embedding therapy

Yang Suyin [19] et al. randomly divided 60 patients with postpartum stress urinary incontinence into a functional training group, an electrical stimulation group and a thread-embedding group, with 20 cases in each group. The results showed that after treatment, the surface electromyography value of pelvic floor muscle in the catgut embedding group was significantly higher than that in the functional training group, and the improvement of 1-hour urine pad test leakage and ICI-Q-SF score was better than the other two groups ($P<0.05$). The conclusion of this study shows that Baliao acupoint catgut embedding combined with pelvic floor muscle function training can significantly improve the pelvic floor muscle strength and relieve the symptoms of postpartum stress urinary incontinence. Zhang Lu[20]enrolled 70 female patients with stress urinary incontinence of unstable renal qi and randomly divided them into an acupoint catgut embedding combined with pelvic floor muscle training (PFMT) group and an ordinary acupuncture combined with PFMT group, 35 cases in

each group. The results showed that after treatment, the 1-hour urine pad test leakage volume and TCM syndrome scale score in the acupoint catgut embedding group were significantly lower than those in the control group (P<0.05), and the total effective rate was also higher than that in the control group (86.67% vs. 74.19%). The follow-up results showed that the long-term effect of acupoint catgut embedding group was stable and the recurrence rate was low. The study concluded that acupoint catgut embedding combined with PFMT was superior to conventional acupuncture combined with PFMT in improving urine leakage and quality of life. Xu Kun [21] conducted a randomized controlled study on 66 patients with stress urinary incontinence in perimenopausal period and divided them into an acupoint thread embedding group and a common acupuncture group. The results showed that the total effective rate of the acupoint thread embedding group was 93.3%, which was significantly higher than 66. 7% of the common acupuncture group (P<0.05). After treatment, the acupoint catgut embedding group was superior to the common acupuncture group in the 72-hour urinary incontinence frequency, 1-hour urine pad test leakage volume and ICI-Q-SF scale score improvement (P<0.01). The conclusion of this study shows that acupoint catgut embedding is effective in the treatment of stress urinary incontinence in perimenopausal period, and it is an effective method worthy of promotion. Xu Fang [22] conducted a randomized controlled study on 54 female patients with stress urinary incontinence. The control group was treated with electrical stimulation biofeedback, and the observation group was treated with acupoint catgut embedding on the basis of the control group. The results showed that the number of treatment cycles in the observation group was significantly less than that in the control group (P<0.05), and the symptoms disappeared faster. The study concluded that acupoint catgut embedding combined with electrical stimulation biofeedback therapy can shorten the treatment period, improve the treatment efficiency, and obtain better clinical efficacy.

4. Discussion

There are various ways to treat stress urinary incontinence in traditional Chinese medicine, including acupuncture, traditional Chinese medicine, massage, moxibustion and so on. As a common non-surgical treatment for stress urinary incontinence, the above-mentioned TCM treatment methods have been increasingly recognized by the public. In the treatment of stress urinary incontinence with traditional Chinese medicine, the holistic concept, syndrome differentiation and treatment, combined with the theory of viscera syndrome differentiation and meridian-collaterals, are adopted. TCM treatment has significant clinical effect, safe and feasible, and has the advantages of less adverse reactions and good long-term prognosis compared with surgical treatment and western medicine treatment. However, there are many methods of traditional Chinese medicine for the treatment of stress urinary incontinence, such as acupuncture treatment and traditional Chinese medicine treatment, there are no fixed prescription, can not be quantified to specify a unified standard, which is not conducive to clinical promotion and other problems. The specific mechanism of traditional Chinese medicine and acupuncture in the treatment of urinary incontinence also needs to be further clarified. Therefore, further practice and exploration should be carried out in combination with clinical practice, in order to better explore new methods of traditional Chinese medicine in the treatment of stress urinary incontinence, so that traditional Chinese medicine in the treatment of stress urinary incontinence can play a better role and benefit more patients with stress urinary incontinence in clinical practice.

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