

# Progress in rehabilitation treatment of stress urinary incontinence in middle-aged and elderly women

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**Abstract:** *Stress urinary incontinence is very common in middle-aged and elderly women, but due to the symptoms of unmentionable, leading to the majority of women ashamed to seek medical treatment or can not cause high attention, and then when the disease worsens, seriously affect the quality of life of women, to women's daily life brings a lot of inconvenience. In this paper, by referring to a large number of literature, the current rehabilitation treatment methods for stress urinary incontinence of middle-aged and elderly women are summarized.*

**Keywords:** *stress urinary incontinence; Middle-aged and elderly women; Rehabilitation treatment;*

## 1. Introduction

Stress urinary incontinence is an involuntary leakage of urine caused by a sudden rise in abdominal pressure during intense exercise such as sneezing, laughing or walking up and down stairs. The causes of stress urinary incontinence in middle-aged and older women include pregnancy, natural childbirth, reduced estrogen levels, obesity and chronic constipation.

Stress urinary incontinence is very common among middle-aged and elderly women. However, due to the unmentionable symptoms, most women are ashamed to seek medical treatment or cannot be paid high attention to, and the condition worsens, which seriously affects the quality of life of women and brings many inconveniences to their daily life. Foreign studies have reported that nearly 50% of adult females may develop stress urinary incontinence, and with the aging of the population, the incidence of stress urinary incontinence is on the rise, but only less than 25% of women seek and receive treatment [1].

In this paper, by referring to a large number of literature, the current rehabilitation treatment methods for stress urinary incontinence of middle-aged and elderly women are summarized.

## 2. Diagnosis of stress urinary incontinence

### 2.1 Diagnostic criteria of stress urinary incontinence

*Guidelines for Diagnosis and Treatment of Female Stress Urinary Incontinence (2017 Edition)* issued by the Chinese Medical Association classified female stress urinary incontinence into mild, moderate and severe according to the severity of the disease. Mild urinary incontinence occurs when coughing or sneezing, which occurs at least twice a week; Moderate for walking, jogging and other daily exercise occurred; Severe weight occurs when standing.

### 2.2 Diagnostic methods of stress urinary incontinence

#### 2.2.1 Urine pad test

Pad tests include 24h, 3h and 1h pad tests, but 1h pad test is currently recommended because 24h and 3h pad tests are subject to time, environment and patient compliance.

Methods: Patients were asked to place weighed urine pads before the start of the trial, when it began, firstly the patients were asked to drink 500ml of water within 15 minutes and rest in bed. Secondly, the patients were asked to walk in the next 30 minutes and up and down the steps of a layer of floor. In the last 15 minutes, the patients were asked to sit and stand 10 times and cough vigorously 10 times and run for 1 minute and pick up 5 items on the ground, and wash hands for a minute.

Patients were required to fill their bladders and not urinate during the first hour of the experiment. After the end of the experiment, the patient urinated and said to take the weight of the urinal pad and record the urination volume. The severity of stress urinary incontinence was determined according to the volume of urine produced in 1h. Mild urination was less than 2 grams per hour; Moderate urination is 2-10 grams per hour; Severe urination is 10-50 grams per hour; Very severe urination is greater than 50 grams per hour.

### **2.2.2 Finger pressure test (bladder neck elevation test)**

Methods: The patient was asked to cough vigorously to observe whether the urethral orifice overflows. If overflows, the pressure test was positive. On the contrary, the examiner extended the middle finger and indicator finger into the vagina, separated the two fingers and placed them on both sides of the posterior urethra, and paid attention not to press the two fingers on the urethra. When the bladder neck is pushed forward to the top, the para-urethra tissues are simultaneously lifted and the urethra rises, restoring the normal Angle between the urethra and the bladder. Have client cough vigorously and continuously and observe urethral orifice for overflow of urine.

### **2.2.3 Perineal ultrasound diagnosis**

Transperineal pelvic floor ultrasound can dynamically and real-time observe the activities of pelvic floor organs, clearly show the structural relations and mutual movement of urethra, vagina, bladder and their surrounding tissues, which is the main method for the diagnosis of stress urinary incontinence.

Xiu-fang li <sup>[2]</sup> researched the pelvic ultrasound in its application, in 235 patients with stress urinary incontinence in elderly women, Studies have shown that the movement of the bladder neck in elderly women with stress incontinence is positively correlated with the severity of the disease, Therefore, pelvic floor ultrasound can be used to check the movement of bladder neck and determine the severity of the patient's condition, which can play an important reference role in the early treatment of patients.

Some scholars <sup>[3]</sup> proposed three diagnostic criteria for pelvic floor ultrasound measurement, namely the distance between the bladder neck and the lower edge of the pubic symphysis  $\geq 2.3$ cm, the rotation Angle of the bladder neck  $\geq 20^\circ$ , and the posterior Angle of the cysto-urethra  $\geq 90^\circ$  in resting state. If 2 of them are met, stress urinary incontinence can be diagnosed. This criterion can not only diagnose stress urinary incontinence, but also evaluate its severity.

## **3. Rehabilitation and treatment of stress urinary incontinence**

### **3.1 Active exercise of pelvic floor muscles**

Kegel exercise is the main and common method for pelvic floor muscle rehabilitation at present, with good clinical treatment effect, simple operation and high safety. When Kegel works out, the muscles contract and relax at different times, depending on the type of muscle fiber in the pelvic floor. Class I muscle fiber: During exercise, patients are required to do the exercise of lifting the anus continuously for 5 seconds/time, and then relax for 3 seconds, 50-100 times/day; II class muscle training method, patients do the lifting of the anus exercise, but the lifting of the anus exercise lasts for 1 second/time, and then rest for 1 second, 100-150 times/day.

Kegel exercises mainly strengthen the contractility of pelvic floor muscles, so as to improve the functions of urethra and anal sphincter, and finally play a rehabilitation effect for middle-aged and elderly female patients with stress urinary incontinence <sup>[4]</sup>. However, Kegel exercises are more effective for middle-aged and older women with mild to moderate stress incontinence, and for those with severe stress incontinence, vaginal dumbbells can be used as a training aid.

Vaginal dumbbells are plastic balloons made of medical material with a metal core. They range in weight from 20 to 70g. They are usually divided into five weight classes, numbered 1 to 5, with weight gradually increasing. During the training, the appropriate weight of vaginal dumbbells was selected according to the level of pelvic floor muscle strength.

Methods: Choose the appropriate weight of vaginal dumbbells, generally according to the pelvic floor muscle level of the patient, pelvic floor muscle strength is level 1, choose No. 1 vaginal dumbbells, and so on. Place the sterilized vaginal dumbbell in the vagina and ask the pelvic floor muscles to contract. It is better that the vaginal dumbbell does not come out of the vagina. At the initial training, the vaginal dumbbells were kept in the vagina for 1min, and the retention time was gradually extended with the increase of pelvic floor muscle strength. When the patient maintained for more than

10 minutes, and the vaginal dumbbells did not come out under the circumstances of coughing, laughing, running, etc., the weight of the vaginal dumbbells gradually increased.

The research of Liu Qishi <sup>[5]</sup>, 150 cases of patients with stress urinary incontinence in elderly women patients were randomly divided into three groups, One group received biofeedback combined with point stimulation, the second group performed anal lifting exercises on the basis of the first group; the third group performed vaginal dumbbell training on the basis of the first group.

Pelvic floor muscle exercise method and pelvic floor rehabilitation device treatment can effectively improve the treatment effect of stress urinary incontinence in middle-aged and elderly female patients, optimize the urodynamics index, reduce urine leakage, and improve pelvic floor muscle strength. After 2 courses of treatment, the therapeutic effect was compared, The results showed that biofeedback method combined with electrical stimulation, pelvic floor muscle exercise and pelvic floor rehabilitation device could effectively improve the treatment effect of stress urinary incontinence in middle-aged and elderly female patients, optimize the urodynamic indexes, reduce urine leakage, and improve pelvic floor muscle strength

### **3.2 Physical factor therapy**

Neuromuscular electrical stimulation and biofeedback electrical stimulation are the physical factor therapy methods which are widely studied and applied in clinical practice at present, and both of them have significant therapeutic effects on stress urinary incontinence.

Some scholars used pelvic floor muscle biofeedback electrical stimulation to treat middle-aged and elderly women suffering from stress urinary incontinence, and randomly divided them into two groups. The control group received pelvic floor muscle training, and the experimental group received biofeedback electrical stimulation. The results showed that the treatment effect of the experimental group was better than that of the control group. Biofeedback electrical stimulation of pelvic floor muscle has a significant effect in the treatment of elderly female patients with stress urinary incontinence, which is worth promoting <sup>[6,7]</sup>.

Huang Xiaoyu et al. <sup>[8]</sup> randomly divided 50 middle-aged and elderly female patients with stress urinary incontinence into two groups. The control group was given active pelvic floor muscle training, and the experimental group was given neuromuscular electrical stimulation, followed by biofeedback training mode training, and finally pelvic floor muscle training. The results showed that the total effective rate of the observation group (90.0%) was better than that of the control group (62.0%). Therefore, the comprehensive treatment of pelvic floor rehabilitation is better than the simple pelvic floor muscle training, and has the advantages of low risk and simple operation, which is worthy of promotion and application.

### **3.3 Traditional Chinese medicine rehabilitation treatment**

In the theory of traditional Chinese medicine, stress urinary incontinence belongs to "enuresis" and "incontinence of urine". The lesion site is the bladder, and it is closely related to the dysfunction of liver, spleen, kidney, tricoke and so on.

With the continuous popularization of traditional Chinese medicine rehabilitation methods and the continuous in-depth research in clinical treatment, traditional Chinese medicine rehabilitation methods have achieved remarkable effects in the treatment of middle-aged and elderly women with stress urinary incontinence.

Pan Zhenliang et al. <sup>[9]</sup> treated patients with moderate stress urinary incontinence with the method of invigorating the spleen and invigorating the kidney according to the treatment from the spleen and kidney, control group adopted the pelvic floor muscle training, the experimental group used the Chinese medicine dialectical, treated from the spleen kidney, by adopting the method of invigorating kidney and making the recipe for invigorating the spleen and invigorating the kidney by oneself. After one month of treatment, the treatment effect of the experimental group was significantly higher than that of the control groups, so, the method of invigorating spleen and invigorating kidney based on the treatment of spleen and kidney has a good effect in the treatment of urinary incontinence in the middle aged and elderly and is worth popularizing.

Chen Zhiling et al. <sup>[10]</sup> conducted a study on the effects of peiyuenqi acupuncture on the urodynamic parameters and quality of life of female patients with mild to moderate stress urinary incontinence, The

control group was used pelvic floor muscle training, and the experimental group was used in pelvic floor muscle training on the basis of adding the treatment of acupuncture and moxibustion of tonifying kidney qi, the method was acupuncture on both sides of the Yang Zusanli Sanyinjiao, moxibustion Shenque point. After 8 weeks of treatment, the total response rate, vaginal resting pressure and vaginal systolic pressure, detrusor pressure at maximum urinary flow rate, functional urethral length, maximum urethral closure pressure, Valsalva leakage point pressure and bladder compliance of the experimental group were significantly higher than those of the control group.

Xu Xiaohong et al. [11] compared the therapeutic effects of electroacupuncture on genital nerve stimulation and traditional acupuncture points in the treatment of elderly women with stress urinary incontinence. The control group adopted traditional acupuncture degree, the experimental group selected "sacral four points", and the control group selected bilateral Shenshu, Bingshu and Huiyang points. The results showed that there were significant differences between the two groups in SUI symptoms and quality of life score (ICI-Q-SF), pelvic floor muscle function assessment, and urodynamic indexes after treatment. There were significant differences in quality of life score, pelvic floor muscle function assessment and urodynamic indexes between the two groups. However, the total effective rate of the experimental group (77.27%) was significantly better than that of the control group (33.33%).

### **3.4 Health education**

Patients with stress urinary incontinence due to a lack of understanding of disease, will not be active treatment, or because of difficult symptoms, they often choose to hide the condition, which lead to illness not well treatment, therefore, Many scholars carried out health education and psychological counseling for patients with stress urinary incontinence, so as to improve patients' cognition of the disease and their compliance with treatment many.

Li Min et al. [12] studied the application of health education and psychological counseling in biofeedback treatment of 48 elderly female patients with stress urinary incontinence. Before the biofeedback treatment, the patients were first surveyed by questionnaire to understand their basic conditions. Then, in the biofeedback treatment, the patients were given one-to-one nursing guidance to let them understand the training methods of pelvic floor muscles; Finally, a follow-up was conducted after the training to evaluate the efficacy of biofeedback treatment. The results showed that appropriate health education and psychological counseling in the biofeedback treatment for elderly patients with SUI was conducive to improving patients' attention to the disease, alleviating mental stress and improving the treatment effect..

Cai Shu et al. [13] studied the application effect of protective motivation theory in health education for 96 elderly female patients with stress urinary incontinence in the community, The control group was given routine health education, while the experimental group was given health education program guided by protective motivation theory on the basis of routine health education. After 6 months of intervention, the results showed that the health education based on the theory of protective motivation could effectively improve the self-efficacy and pelvic floor muscle exercise compliance of middle-aged and elderly women with stress urinary incontinence in the community, and improve the symptoms of urine leakage.

### **3.5 Cognitive behavioral intervention**

At present, there are many treatment methods for stress urinary incontinence, and the treatment effect is significant, but some patients have a strong sense of stigma, inferiority complex and anxiety due to lack of awareness of the disease, so the degree of cooperation in the treatment and rehabilitation process is low, and the treatment effect can not be guaranteed.

Therefore, when many scholars studied specific treatment methods for stress urinary incontinence, they increased the level of relevant health knowledge of the disease and intervene in patients' daily behaviors, which can help patients to face up to the disease, enhance self-management, and improve treatment compliance, so as to improve the cure rate of the disease and the quality of life of patients [14,15].

#### 4. Conclusions

To sum up, there are many treatment methods for stress urinary incontinence in middle-aged and elderly women, and the effect is significant. However, comprehensive evaluation should be carried out according to the patient's condition before the treatment process, and individualized rehabilitation treatment plan should be selected according to the evaluation results, so as to achieve better treatment effect.

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