

Research Progress in the Diagnosis and Treatment of Mixed Urinary Incontinence from Both Traditional Chinese and Western Medicine

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Abstract: *Mixed urinary incontinence (MUI) refers to the simultaneous presence of symptoms of stress urinary incontinence and urge urinary incontinence. Its treatment is complex and represents a significant challenge in the field of urogynecology. This article reviews recent clinical and basic research advances in MUI from both traditional Chinese medicine (TCM) and Western medicine perspectives. Western medical treatments primarily involve behavioral therapy, pharmacological interventions, and surgical procedures. While these approaches are highly targeted, they often come with side effects or may not be suitable for all patients. In contrast, TCM emphasizes holistic syndrome differentiation and has demonstrated unique advantages in alleviating symptoms and improving quality of life, with fewer side effects. The combination of TCM and Western medicine, by leveraging their respective strengths, holds promise as an important strategy for enhancing the clinical efficacy of MUI treatment. Further research is needed in the future to identify the optimal integrated treatment approach.*

Keywords: Mixed urinary incontinence, Chinese and Western medicine, Treatment.

1. Introduction

Patients with urinary incontinence (UI) primarily complain of involuntary and uncontrolled urination, with reduced ability to voluntarily control bladder emptying. This condition is commonly observed in elderly individuals and women [1]. Clinically, the three main subtypes of urinary incontinence are urge incontinence (UII), stress incontinence (SUI), and mixed incontinence (MUI). SUI is defined as involuntary urine leakage triggered by increased abdominal pressure or physical exertion; it can be broadly categorized into uncomplicated SUI and complicated SUI. UII is characterized by involuntary urination associated with urgency, accompanied by frequent urination or nocturia. MUI exhibits both SUI and UII symptoms and signs simultaneously—patients experience urgency and also leak urine when abdominal pressure increases [2]. MUI is particularly prevalent among women. According to a large-scale, nationwide survey conducted in 2021, the prevalence of urinary incontinence among women was 16.0%, with stress incontinence remaining the predominant subtype at 7.0%. Mixed incontinence and urge incontinence followed, accounting for 6.5% and 1.9%, respectively [3]. The prevalence of urinary incontinence rises with age and is especially common among postmenopausal women. The impact of MUI on patients' quality of life far exceeds that of simple urinary incontinence. Patients not only avoid social interactions and physical activities due to urine leakage but also suffer from sleep disturbances, impaired work performance, and diminished mental health because of frequent urges and nocturia, leading to anxiety, depression, and social isolation [4]. Therefore, MUI represents a significant public health issue.

2. Modern Medical Understanding of Mixed Urinary Incontinence

2.1 Pathophysiological Mechanism

The pathophysiological mechanisms of MUI have not yet been fully elucidated; currently, it is believed to be a complex interplay of mechanisms associated with SUI and UII. Mechanism of stress urinary incontinence: SUI primarily involves two mechanisms. The first is hypermobility of the urethra. When intra-abdominal pressure increases, the loss of pelvic floor support leads to inadequate closure of the urethra and bladder neck, resulting in urine leakage. The second mechanism is intrinsic urethral sphincter deficiency, which causes a loss of tension in the urethral mucosa and muscles, leading to poor urethral closure. The prevalence of SUI increases with age, reaching its peak among postmenopausal women and pregnant women. Several other factors are also associated with SUI, including childbirth, menopause, strenuous physical labor, smoking, and obesity. Chronic cough and other conditions can all cause SUI [5].

- Mechanism of urgency component: It is primarily associated with overactivity of the bladder detrusor muscle. The underlying causes may include decreased central inhibitory function, neuroplastic changes following bladder outlet obstruction, or increased sensitivity of the bladder mucosa or sensory nerves (e.g., urinary tract infections, low estrogen levels after menopause).
- Interaction Theory: MUI is caused by the combined

effects of multiple factors that contribute to both stress urinary incontinence and urge urinary incontinence. Underlying causes include estrogen deficiency, tissue morphological abnormalities, and microstructural changes. One hypothesis suggests that dysfunction of the sphincter and bladder neck allows urine to enter the proximal urethra when intra-abdominal pressure increases, thereby triggering the urethral-detrusor reflex and involuntary detrusor contractions, which in turn lead to symptoms of urge urinary incontinence [6]. Another theory posits that the flow of urine through the urethral mucosa enhances the excitability of the micturition reflex [7]. It is likely that a combination of various factors and functional disturbances jointly contribute to the development of mixed urinary incontinence and its associated symptoms, rather than being attributable to a single cause.

2.2 Diagnosis and Assessment

The core of MUI diagnosis lies in a detailed medical history inquiry and quantitative assessment of symptoms, combined with physical examination and necessary ancillary tests, to clearly determine the primary and secondary components as well as their severity.

1) Medical history taking: Focus on understanding the frequency, severity, triggering factors, and impact on daily life of SUI and UUI symptoms separately. Utilizing validated questionnaires, such as the International Consultation on Incontinence Questionnaire—Urinary Incontinence Short Form (ICIQ-UI SF) and the Overactive Bladder Questionnaire (OAB-q), can help objectively quantify the symptoms [8].

2) Physical examination: Includes a comprehensive neurological examination and a gynecological examination. The gynecological examination should assess the strength of the pelvic floor muscles, the degree of pelvic organ prolapse (using the POP-Q staging system), and perform stress tests and cotton-swab tests to provide a preliminary assessment of urethral mobility.

3) Urination Diary: Record your urination patterns for at least 3 days, including the time of each urination, urine volume, any episodes of urinary leakage (note whether they occurred during activity or when you felt an urgent need to urinate), the number of times you experienced urgency, and your fluid intake. This is a valuable tool for distinguishing between different symptom components and assessing the severity of the condition.

4) Urine Pad Test: The patient performs a 1-hour urine pad test under supervision. Before the test, weigh and record the weight of a clean urine pad. Ask the patient to empty their bladder and put on the collection urine pad. Within 15 minutes, the patient should drink 500 ml of sodium-free liquid and then perform activities such as climbing up and down stairs, standing up, coughing, bending over to pick up objects, and washing hands. The amount of urine leakage is recorded by measuring the increase in weight of the urine pad. This test is used to objectively quantify the amount of urine leakage.

5) Urodynamic testing: Although not all patients with MUI

require it, urodynamic testing is crucial for patients planning invasive treatments (especially surgery), those with unclear diagnoses, or those whose initial treatment has failed [9]. It can confirm the presence of SUI (through measurement of the urethral closure pressure during abdominal straining) and detect detrusor overactivity, thereby providing a pathophysiological basis for treatment.

6) Ultrasound scanning (transperineal/transvaginal)

Ultrasound assessment is not a standard procedure in every case, but it is part of ongoing clinical evaluation Source [10]. For women with MUI primarily characterized by stress incontinence, transperineal/transvaginal ultrasound provides information on the dynamic posterior urethral angle, dynamic urethral tilt angle, bladder neck descent, and dynamic pubourethral distance.

3. Traditional Medicine's Understanding of Mixed Urinary Incontinence

In classical Chinese medical texts, urinary incontinence is primarily categorized under terms such as “inability to control urination” and “urinary leakage” [11]. The underlying pathogenesis can be summarized as follows: the bladder loses its ability to contract and retain urine, resulting in an inability to properly contain it. Here, the “bladder” refers not only to the anatomical organ itself but also to its physiological functions of “qi transformation” (the ability to store and excrete urine) and “storage of body fluids” (the capacity to retain urine). When various factors disrupt the bladder’s “qi transformation” function, impairing its ability to retain body fluids, involuntary leakage of urine occurs. The proper functioning of the bladder depends on the coordinated support of multiple internal organs. Therefore, although urinary incontinence is primarily located in the bladder, its root causes often involve other organs such as the lungs, spleen, kidneys, and liver. The lungs govern qi and regulate respiration; they are responsible for dispersing and descending qi, and they ensure the smooth flow of water pathways, serving as the “source of water above.” When lung qi is abundant, it can distribute body fluids throughout the entire body and transport metabolic waste fluids downward to the bladder. However, when lung qi is deficient, the functions of dispersion and descent become weak, water pathways become imbalanced, the upper source loses its stability, and the downward flow becomes uncontrolled. This condition often results from prolonged coughing or chronic illness that depletes lung qi. A typical manifestation is urinary incontinence, which tends to worsen during coughing, sneezing, or laughing—activities that consume qi. The spleen is responsible for transforming and transporting water and dampness, ascending clear substances, and nourishing muscles. Spleen qi enables the upward transport of nutritional essence from food and drink, while also firmly retaining body fluids within. Moreover, the tone of the pelvic floor muscles depends on the nourishment provided by spleen qi. When spleen qi is deficient (with middle qi sinking), the ability to lift and retain fluids is impaired, leading to downward leakage of water and dampness, muscle atrophy, and relaxation. This manifests as urinary incontinence accompanied by a sensation of heaviness or dropping in the lower abdomen and anus, which worsens after exertion, along with symptoms such as fatigue, pale

complexion, and poor appetite. The kidneys govern water metabolism and control urination and defecation, serving as the foundation for containment and storage. The bladder's ability to transform and excrete urine directly depends on the warming effect of kidney yang and the consolidating function of kidney qi. The kidneys and bladder are mutually connected and correspond to each other. This is the most common and fundamental cause of urinary incontinence. When kidney qi or kidney yang is deficient, the warming and consolidating functions weaken, leaving the bladder cold and unable to properly contain fluids. This condition is frequently observed in elderly individuals, those with weakened constitutions, patients suffering from chronic illnesses, and postpartum women. Symptoms include frequent urination with clear, copious urine; incontinence often occurs before feeling the urge to urinate or during the night, accompanied by soreness and coldness in the lower back and knees, sensitivity to cold, and general mental fatigue. In cases of kidney yin deficiency, internal excess heat arises, disturbing the bladder and potentially causing difficulty in closing the urinary tract. This manifests as short, yellow urine, possibly with an urgent need to urinate, along with hot flashes, night sweats, dizziness, tinnitus, and soreness and weakness in the lower back and knees. Therefore, the TCM syndrome differentiation in MUI may involve complex patterns characterized by deficiency of the root and excess of the surface, as well as a mixture of cold and heat. Treatment targeting only one specific syndrome type alone may yield poor results; thus, highly individualized diagnosis and treatment should be achieved through syndrome differentiation and subtyping.

4. Modern Medical Treatment for Mixed Urinary Incontinence

The treatment for MUI should adopt an individualized, stepwise, and comprehensive management strategy. It is crucial to have thorough communication with the patient before initiating treatment to clearly identify their most troubling symptoms and their expectations regarding therapy.

4.1 First-line Treatment

Behavioral and lifestyle interventions plus pelvic floor muscle rehabilitation therapy (suitable for all patients) [12]. This forms the cornerstone of treatment; it is non-invasive and safe, and should be initiated first and maintained long-term.

1) Lifestyle adjustments: These include weight management, addressing contributing factors, adjusting fluid intake, and quitting smoking. Losing weight can significantly reduce abdominal pressure and improve urinary incontinence. Treating the underlying causes of urinary incontinence—such as chronic cough and constipation—and avoiding strenuous physical labor and prolonged standing can markedly improve symptoms. Avoiding excessive water intake and reducing consumption of stimulating beverages like coffee, strong tea, alcohol, and carbonated drinks can also help relieve symptoms. Chronic cough caused by smoking is an important risk factor for stress urinary incontinence; therefore, quitting smoking as early as possible can also help alleviate urinary incontinence.

2) Bladder training: Extend the interval between urinations,

increase bladder capacity, and suppress overactivity of the detrusor muscle. Method: Establish a regular urination schedule (e.g., every 2 hours), regardless of whether you feel the urge to urinate. Gradually extend the interval (e.g., by 15–30 minutes each week), aiming to achieve urination every 3–4 hours.

3) Pelvic Floor Muscle Rehabilitation Therapy (of utmost importance): (a) Pelvic Floor Muscle Exercises: Also known as Kegel exercises. Correctly and consistently contract and relax the pelvic floor muscles to strengthen the urethral sphincter and the supporting structures of the pelvic floor. It is essential to perform these exercises under the guidance of a doctor or physical therapist to ensure proper technique. (b) Biofeedback Therapy: This involves using instruments to convert the electrical activity of the pelvic floor muscles into visual or auditory signals, helping patients more intuitively perceive and learn how to contract their muscles correctly. (c) Pelvic Floor Electrical Stimulation Therapy [13]: Using vaginal or anal electrodes, low-intensity electrical currents are applied to stimulate the pelvic floor muscles passively, inducing muscle contractions, enhancing muscle strength, and potentially inhibiting unstable bladder contractions.

4.2 Second-line Treatment: Pharmacological Therapy

When first-line treatment proves ineffective, adjunctive pharmacological therapy may be considered. Drug treatments primarily target the urge component of urinary incontinence and have limited efficacy against stress incontinence. (1) Medications for treating urge urinary incontinence (anticholinergics/antimuscarinics): These drugs block M receptors on the detrusor muscle of the bladder, thereby inhibiting its involuntary contractions. Commonly used medications include solifenacin, oxybutynin, tolterodine, and trospium chloride. (2) Medications for treating stress urinary incontinence: The most commonly used are α -adrenergic receptor agonists (such as midodrine), which increase the contractile strength of the urethral sphincter. However, these drugs can cause side effects such as elevated blood pressure and are therefore not widely prescribed; careful monitoring is required. For postmenopausal women: Local application of vaginal estrogen creams can improve atrophic conditions of the urethral and vaginal mucosa, increase urethral closure pressure, and serve as an adjunctive treatment for mild to moderate stress urinary incontinence. (3) Novel medications: β 3-adrenergic receptor agonists (mirabegron) [14, 15]: Unlike anticholinergics, mirabegron activates β 3 receptors in the detrusor muscle of the bladder, causing it to relax and increasing bladder capacity without affecting urination. It has become a first-line or important therapeutic option for the treatment of urge/mixed urinary incontinence.

4.3 Third-line Treatment: Minimally Invasive and Surgical Therapies

Surgical treatment may be considered when conservative and medical therapies prove ineffective or when patients cannot tolerate them, and their symptoms significantly impair their quality of life. Surgery primarily addresses the stress component. (1) Midurethral sling procedure: Currently the “gold standard” surgical approach for treating moderate to severe stress urinary incontinence in women. (2) Bladder neck

suspension: Performed either via open surgery or laparoscopy, this procedure suspends the bladder neck behind the pubic bone. It offers durable efficacy but involves relatively greater trauma. (3) Periurethral injection of bulking agents: A biocompatible bulking agent (such as collagen) is injected submucosally around the urethra to increase urethral closure pressure. This approach is suitable for elderly or frail patients who cannot tolerate surgery. (4) Artificial urinary sphincter implantation: Primarily used in men, especially those with severe stress urinary incontinence following prostate surgery. (5) Invasive treatments targeting the urge component (when medications are ineffective): Intravesical botulinum toxin A injection: Using a cystoscope, botulinum toxin is injected into the detrusor muscle to chemically inhibit its overactivity. (6) Sacral neuromodulation: A “neuromodulation therapy” indicated for refractory urge or mixed urinary incontinence. Prior to implantation, an external trial must be conducted; only if the trial is successful will a permanent device be implanted.

5. Traditional Medicine Treatment for Mixed Urinary Incontinence

5.1 Internal Treatment Method

For the treatment of urinary incontinence, Traditional Chinese Medicine places greater emphasis on developing personalized treatment plans. Based on the patient's symptoms, tongue appearance, pulse condition, and other factors, TCM practitioners select appropriate herbal formulas or proprietary Chinese medicines to achieve relatively ideal therapeutic outcomes. In treating mixed urinary incontinence, TCM adheres to the general principle of tonifying deficiency, regulating the body's vital energy (qi), and consolidating and stopping involuntary leakage. Treatment emphasizes the combination of “tonification” and “consolidation,” while also focusing on restoring the qi-transforming and containment functions of the internal organs. The spleen-kidney qi-blood and middle-jiao descent type is the most common underlying pattern; therefore, treatment should focus on tonifying the spleen and kidneys, lifting yang energy, and strengthening containment. Clinically, the Bu Zhong Yi Qi Tang formula, modified as needed, is often used for this purpose. Zheng Yu et al. [16] found through analysis that Bu Zhong Yi Qi Tang contains 116 potential targets that act on stress urinary incontinence. Zhou Yanyan et al. [17], via a meta-analysis, demonstrated that the combination of modified Bu Zhong Yi Qi Tang with conventional Western medical treatments shows certain advantages in improving clinical efficacy rates, enhancing quality-of-life scores related to urinary incontinence, reducing the amount of urine leakage measured by the 1-hour pad test, and decreasing the number of episodes of urinary incontinence over 24 hours. This approach can help restore pelvic floor muscle function and has relatively few adverse reactions. Sun Tianheng et al. [18] suggest that stress urinary incontinence should be treated from the perspective of aiding bladder qi transformation, supplemented by kidney-tonifying therapies; the Wu Ling San formula and its derivatives can improve the function of the bladder sphincter.

5.2 External Treatment

1) Acupuncture therapy

Acupuncture therapy is one of the most powerful “weapons” and has now gained widespread international recognition. The lumbosacral region, as the “abode of the kidneys,” is also the pathway for the Bladder Meridian and the Governing Vessel, as well as a dense concentration area for back Shu points. From an anatomical perspective, the pelvic floor muscle group attaches to the bony structures of the lumbosacral region; therefore, acupuncture treatments commonly select acupoints located in the abdomen, lumbosacral region, and lower limbs, primarily targeting the Ren and Du meridians as well as the Bladder, Spleen, Stomach, and Kidney meridians [19]. The locations of these acupoints largely correspond to the spinal nerve segments that innervate the tissues surrounding the urethra and the pelvic floor muscles [20]. Zhang Teng et al. [21] found that acupuncture at Zhongji point—at varying depths—could reduce the 1-hour urinary leakage volume and improve the ICI-Q-SF score in female patients with stress urinary incontinence to some extent, thereby alleviating their urinary incontinence symptoms. He Chaowei et al. [22] suggested that the “one acupoint, multiple stimulation sites” acupuncture technique can relieve urinary incontinence symptoms following stroke and improve bladder function.

Electroacupuncture treatment can reduce urine leakage in female patients with urinary incontinence, decrease the frequency of leakage episodes, and prolong the ability to hold urine. Studies have shown that electroacupuncture can strengthen the support provided by the bladder neck and urethra, improve mitochondrial dysfunction in the urethral sphincter cells under conditions of stress urinary incontinence, regulate oxidative stress, reduce cell apoptosis, and thereby decrease urine leakage [23, 24]. Qi Ding et al. [25] suggested that electroacupuncture stimulation of the Baliao acupoint can reduce urine leakage in female patients with mild to moderate stress urinary incontinence and alleviate their clinical discomfort symptoms. Chen Yitian et al. [26] found that applying electroacupuncture stimulation to suprapubic acupoints such as Qichong, Chongmen, Henggu, and QuGu can improve the pelvic floor structure of female patients, restore pelvic floor function, and consequently ameliorate the clinical symptoms of stress urinary incontinence in these patients. Moxibustion therapy, through its effects of warming the meridians, dispelling cold, resolving blood stasis, and dispersing masses, can effectively unblock the Qi flow of the Triple Burner, regulate the circulation of Qi and blood, and assist bladder Qi transformation. Studies have shown that moxibustion at the Bladder Shu point can modulate the Qi-transforming mechanisms of the kidneys and bladder, thereby improving the function of the bladder detrusor muscle. Thanks to the penetrating action of heat, combined with the local needle sensation produced by acupuncture at specific acupoints and the meridian-conducting effect, this creates an advantageous combination in acupuncture therapy. This combination maximizes therapeutic benefits within a limited treatment space, thus shortening the duration of urinary incontinence treatment, enhancing clinical efficacy, and improving prognosis. Zhang Chong et al. [27] suggested that the combination of moxibustion and rehabilitation training is highly effective in treating patients with post-stroke neurogenic bladder (PSND), significantly improving both clinical outcomes and traditional Chinese medicine syndrome scores, and reducing the incidence of Improves symptom

scores, alleviates lower urinary tract symptoms, enhances urination, and regulates bladder function.

2) Auricular acupuncture therapy

Ear acupuncture therapy is a method that regulates the functions of the cerebral cortex and balances the nervous system by stimulating corresponding acupoints on the ear. It can effectively improve hormone secretion and organ rhythms. In the treatment of urinary incontinence, acupoints such as bladder, kidney, urethra, and triple burner can be selected. Li Hongyan et al. [28] suggested that the application of traditional Chinese medicine ear-acupuncture therapy may exert its effects through mechanisms involving neural pathways and regulation of substances within the body.

3) Traditional therapeutic practices [29, 30]

Abdominal and Anal Sphincter Contraction Exercise. Stand with your body fully relaxed, legs slightly bent (you may also adopt a seated or supine position). Regulate your breathing, accumulate saliva in your mouth, contract your abdomen and tighten your anal sphincter. Inhale slowly, contracting your lower abdomen and lifting your anus as if you were holding back a bowel movement; hold your breath, simultaneously using mental focus to lift and raise the energy upward toward the area around your navel. Hold your breath until you reach the maximum point of retention, then open your mouth and exhale, releasing the tension in your anal sphincter while lowering it gently. Swallow the saliva accumulated in your mouth. One contraction followed by one relaxation, accompanied by one inhalation and one exhalation, constitutes one repetition. Each repetition lasts approximately 25 seconds, and you should perform 30 repetitions continuously. Practice once each morning and once each evening daily; one course of treatment lasts 12 weeks.

4) Acupoint Application Therapy [31]

Suitable for conditions characterized by sinking of the middle Qi. Prescription of herbs and acupoint application sites: 1) Guquan Navel Patch (composition: *Alpinia oxyphylla*, *Rubus chingii*, *Rubus idaeus*, *Lindera aggregata*, *Galla chinensis*, *Phellodendron amurense*, *Cinnamomum cassia*, *Syzygium aromaticum*) applied to the Shenque acupoint [32]; 2) Guquan Patch (composition: *Astragalus membranaceus*, *Psoralea corylifolia*, *Semen Morindae*, *Rubus chingii*, *Cuscuta chinensis*, *Cinnamomum cassia*) applied to Shenque, Guanyuan, Mingmen, Zusanli (bilaterally), and Sanyinjiao (bilaterally) [33]; 3) Yiqi Shengti Powder (composition: *Astragalus membranaceus*, *Atractylodes macrocephala*, *Saposhnikovia divaricata*, *Clematis armandii*) applied to Qihai, Guanyuan, Shenyu (bilaterally), Piyu (bilaterally), and Zusanli (bilaterally) [34]. Apply once daily (for about 4 hours); one course of treatment lasts 8 weeks. For detailed operational procedures and precautions, refer to “Acupuncture Technique Operation Specifications—Part 9: Acupoint Application.” During the application period, skin allergic reactions such as redness, swelling, or itching may occur. Discontinue use immediately and seek treatment for allergic symptoms if necessary.

6. Research Progress in Integrated Traditional Chinese and Western Medicine Treatment

This is currently one of the most promising fields, aiming to leverage synergistic effects. Numerous studies have shown that combined traditional Chinese and Western medicine treatments significantly outperform either Western or Chinese medicine alone in terms of overall efficacy, reduction in the frequency of urinary incontinence episodes, and improvement in quality-of-life scores. Building on pelvic floor muscle training (PFMT), using Chinese herbal medicine or acupuncture to stimulate meridian energy can markedly enhance the recovery of pelvic floor muscles and improve treatment outcomes. Kan Wenjing et al. [35] suggested that electroacupuncture combined with pelvic floor muscle training can effectively alleviate clinical symptoms of mixed urinary incontinence in women, improve their quality of life, and reduce psychological stress. Gu Yiming et al. [36] demonstrated through a combination of electroacupuncture, Chinese herbal medicine, and pelvic floor muscle training that, in treating mild to moderate stress urinary incontinence (SUI) among perimenopausal women, this approach can reduce urine leakage volume, increase abdominal pressure at the point of leakage, raise maximum urethral closure pressure, enhance bladder compliance, and significantly improve patients' quality of life.

7. Discussion and Outlook

Mixed urinary incontinence is a common and complex condition that requires multidisciplinary collaboration and personalized treatment approaches. The integration of traditional Chinese medicine (TCM) and Western medicine provides a more comprehensive toolkit: while Western medicine excels at rapidly controlling primary symptoms, TCM focuses on addressing the underlying causes and reducing recurrence. The diagnosis and management of mixed urinary incontinence also face challenges: the subjective nature of TCM syndrome differentiation necessitates the establishment of more objective and quantifiable TCM diagnostic criteria for MUI; furthermore, in terms of treatment strategies. For facial optimization, further clinical evidence is needed to determine which combination therapy approach is superior. In-depth research into its pathological mechanisms using modern technologies is essential, and further advancements will be required in the future.

8. Conclusion

Both Western and traditional Chinese medicine have their own distinctive strengths in the treatment of mixed urinary incontinence. Western medicine offers precise diagnosis and rapid efficacy, while traditional Chinese medicine focuses on holistic regulation with fewer side effects and emphasizes addressing the root cause of the condition. Current evidence strongly supports the superiority of combined Western and traditional Chinese medical approaches in enhancing clinical efficacy for MUI and improving patients' quality of life. Future research should focus on optimizing combination therapies, standardizing diagnostic and therapeutic protocols,

and deepening our understanding of the underlying mechanisms, thereby promoting the development of more guiding and widely applicable clinical practice guidelines for the integrated treatment of MUI using both Western and traditional Chinese medicine.

References

- [1] Lukacz, E.S., et al., Urinary Incontinence in Women: A Review. *JAMA*, 2017. 318(16): p. 1592-1604.
- [2] Russo, E., et al., Management of urinary incontinence in postmenopausal women: An EMAS clinical guide. *Maturitas*, 2021. 143: p. 223-230.
- [3] Pang Haiyu and Zhu Lan, Epidemiological Characteristics and Trend of Prevalence of Urinary Incontinence Among Chinese Adult Women. *Science Bulletin*, 2025. 70(24): pp. 4003-4005.
- [4] Liu Feng, Wu Xiaoli, and Xie Jianjun. The Correlation Between Anxiety, Depression, and Stress Urinary Incontinence in Women. *Medical Information*, 2020. 33(02): pp. 116-117.
- [5] Wang, X., L. Zhang and Y. Lu, Advances in the molecular pathogenesis and cell therapy of stress urinary incontinence. *Front Cell Dev Biol*, 2023. 11: p. 1090386.
- [6] Delancey, J.O.L. and J.A. Ashton-Miller, Pathophysiology of adult urinary incontinence. *Gastroenterology*, 2004. 126(1 Suppl 1): p. S23-32.
- [7] Bergström, B.S., The Urethral Hanging Theory: A Unified Biomechanical Model for the Pathophysiology and Treatment of Female Urinary Incontinence. *Int Urogynecol J*, 2025.
- [8] Wadensten, T., et al., App-based self-management of urgency and mixed urinary incontinence in women: One-year follow-up. *Neurourol Urodyn*, 2022. 41(4): p. 945-954.
- [9] Collins, C.W. and J.C. Winters, AUA/SUFU adult urodynamics guideline: a clinical review. *Urol Clin North Am*, 2014. 41(3): p. 353-62, vii.
- [10] Jha, S., et al., Management of mixed urinary incontinence: IUGA committee opinion. *Int Urogynecol J*, 2024. 35(2): p. 291-301.
- [11] He Zhong et al., A Compilation of Ancient Theories on the Pathogenesis of Urinary Incontinence in Traditional Chinese Medicine. *Hebei Journal of Traditional Chinese Medicine*, 2024. 46(05): pp. 853-857.
- [12] Hu, J.S. and E.F. Pierre, Urinary Incontinence in Women: Evaluation and Management. *Am Fam Physician*, 2019. 100(6): p. 339-348.
- [13] Richmond, C.F., et al., Effect of Supervised Pelvic Floor Biofeedback and Electrical Stimulation in Women With Mixed and Stress Urinary Incontinence. *Female Pelvic Med Reconstr Surg*, 2016. 22(5): p.324-7.
- [14] Sacco, E. and R. Bientinesi, Mirabegron: a review of recent data and its prospects in the management of overactive bladder. *Ther Adv Urol*, 2012. 4(6): p. 315-24.
- [15] Ko, K.J., et al., A multicenter prospective study on overactive bladder patient treatment satisfaction with mirabegron after being unsatisfied with antimuscarinic therapy (FAVOR study). *Neurourol Urodyn*, 2020. 39(8): p. 2417-2424.
- [16] Zheng Yu, Zhai Xinyu, and Wang Chen. Exploring the Mechanism of Buzhong Yiqi Decoction in Treating Stress Urinary Incontinence Based on Network Pharmacology. *World Journal of Traditional Chinese Medicine*, 2021. 16(07): pp. 1054-1059.
- [17] Zhou Yanyan et al., Efficacy and Safety of Modified Buzhong Yiqi Decoction in the Treatment of Female Stress Urinary Incontinence: A Meta-analysis. *World Journal of Integrated Traditional and Western Medicine*, 2024. 19(01): pp. 42-51.
- [18] Sun Tianheng, Chen Huan, and Liu Zhishun, Clinical Application of Wuling San-Like Formulas in the Treatment of Stress Urinary Incontinence. *World Journal of Traditional Chinese Medicine*, 2022. 17(10): pp. 1459-1464.
- [19] Long Wei et al., Analysis of Acupoint Selection Patterns for Acupuncture Treatment of Stress Urinary Incontinence over the Past 10 Years Based on Data Mining Techniques. *Chinese Journal of Clinical Research*, 2024. 16(01): pp. 93-99.
- [20] Shi Li, Zhou Zhenkun, and Jiang Min. A Preliminary Analysis of Acupuncture Treatment for Female Stress Urinary Incontinence Based on the Theory of Jingjin. *Chinese Journal of Traditional Chinese Medicine*, 2023. 64(18): pp. 1922-1925.
- [21] Zhang Teng et al., A Randomized Controlled Trial on Acupuncture at Different Depths of Zhongji Point for the Treatment of Female Stress Urinary Incontinence. *Acupuncture Research*: pp. 1-9.
- [22] He Chaowei et al., "Acupuncture at Multiple Points in a Single Acupoint" for the Treatment of Urgent Urinary Incontinence Following Stroke: A Series of 31 Cases. *Journal of Practical Traditional Chinese Medicine*, 2025. 41(08): pp. 1681-1682.
- [23] Li, C., et al., Effect of electroacupuncture on the degradation of collagen in pelvic floor supporting tissue of stress urinary incontinence rats. *Int Urogynecol J*, 2022. 33(8): p. 2233-2240.
- [24] Yang Ming et al., Study on the Mechanism of Electroacupuncture at Qihai, Zhongji, and Guanyuan Acupoints in Improving Mitochondrial Damage of the Urethral Sphincter in Stress Urinary Incontinence. *Shaanxi Journal of Traditional Chinese Medicine*, 2024. 45(04): pp. 440-445.
- [25] Qi Ding et al., Clinical Observation on the Efficacy of Acupuncture in Treating Mild to Moderate Stress Urinary Incontinence in Women. *Shanghai Journal of Acupuncture*, 2022. 41(06): pp. 589-593.
- [26] Chen Yitian et al., Clinical Observation and Mechanism Exploration of Electroacupuncture Stimulation of the Four Acupoints Above the Pubis in the Treatment of Female Stress Urinary Incontinence. *Zhejiang Journal of Integrated Traditional Chinese and Western Medicine*, 2024. 34(05): pp. 439-442.
- [27] Zhang Chong et al., The Effect of Moxibustion Combined with Rehabilitation Training on Bladder Function in Patients with Neurogenic Bladder Following Stroke. *Journal of Hubei University of Chinese Medicine*, 2025. 27(04): pp. 70-73.
- [28] Li Hongyan, Zhao Mengying, and Tang Yeqin. The impact of combined ear acupuncture therapy and moxibustion with WeChat-based pelvic floor muscle rehabilitation training on the quality of life of patients with post-prostatectomy urinary incontinence. *Inner*

- Mongolia Journal of Traditional Chinese Medicine, 2025. 44(04): pp. 122–124.
- [29] Pang Qiushi, Clinical Observation on the Efficacy of Traditional Anal Sphincter Exercises Combined with Health Guidance in Improving Quality of Life for Women with Stress Urinary Incontinence, 2019, Beijing University of Chinese Medicine.
- [30] Lin Hong and Wang Xudong, Observation on the Rehabilitation Effect of Traditional Anal Sphincter Exercises on Female Stress Urinary Incontinence. Chinese Journal of Traditional Chinese Medicine, 2013. 28(12): pp. 3542–3544.
- [31] Zhou Yanyan et al., Clinical Practice Guideline for Stress Urinary Incontinence in Women (2023). Chinese Journal of Traditional Chinese Medicine, 2024, 65(13): pp. 1408–1416.
- [32] Gong Xiaojuan, Liao Yixin, and Yuan Xunfu. Warm-kidney and astringent topical application for the treatment of female stress urinary incontinence. Modern Clinical Chinese Medicine, 2017. 24(04): pp. 39–42.
- [33] Wang Lizhen, Wang Jiang, and Hu Li. Clinical efficacy of Guquan Tie in treating female stress urinary incontinence. Nursing Research, 27(26): pp. 2881–2882.
- [34] Zeng Jingxiang, Clinical Study on the Treatment of Postpartum Stress Urinary Incontinence of Qi Deficiency Type by Acupoint Application with Traditional Chinese Medicine, 2014, Guangzhou University of Chinese Medicine.
- [35] Kan Wenjing et al., Clinical Observation on the Efficacy of Electroacupuncture Combined with Pelvic Floor Muscle Training in the Treatment of Female Mixed Urinary Incontinence. Shanxi Journal of Traditional Chinese Medicine, 2022. 38(06): pp. 44–45.
- [36] Gu Yiming et al., A Clinical Study on the Combined Treatment of Electroacupuncture and Traditional Chinese Medicine with Pelvic Floor Muscle Training for Stress Urinary Incontinence in Perimenopausal Women. Chinese Journal of Clinical Pharmacology and Therapeutics, 2019. 24(04): pp. 464–470.