Clinical Efficacy of Miao Medicine Bamboo-Needle Moxibustion Therapy in the Treatment of Erectile Dysfunction: A Postprint

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Abstract

Background: Erectile dysfunction (ED) has a high incidence and causes substantial harm. The Miao medicine bamboo-moxibustion therapy belongs to the traditional "herb-separated moxibustion" and is commonly used in clinical practice for the treatment of ED, but clinical evidence is lacking. Objective: To investigate the clinical efficacy of Miao medicine bamboo-moxibustion therapy in the treatment of ED. Methods: A total of 60 patients with ED who attended the Acupuncture Department outpatient clinic and the Department of Urology of the First Affiliated Hospital of Guizhou University of Traditional Chinese Medicine from December 2021 to March 2024 were enrolled. Patients were randomly divided into a sildenafil group and a Miao medicine bamboo-moxibustion group, with 30 cases in each group. The sildenafil group received oral sildenafil citrate tablets 50 mg, administered 1 hour before sexual activity. The Miao medicine bamboo-moxibustion group received herb-separated moxibustion at Qihai (CV6), Guanyuan (CV4), Zhongji (CV3), Dahe (KI12), and Qugu (CV2); Shenshu (BL23), Ciliao (BL32), Baihuanshu (BL30), Xialiao (BL34), and Zhibian (BL54), with alternating treatment at these acupoints in the two regions, once every other day, 40 minutes per session. Both groups were treated for 30 days. After treatment, the therapeutic efficacy was evaluated in both groups. Serum testosterone (T) levels before and after treatment were compared, as well as changes in International Index of Erectile Function (IIEF) scores, Self-Rating Anxiety Scale (SAS) scores, Self-Rating Depression Scale (SDS) scores, and traditional Chinese medicine (TCM) syndrome scores before and after treatment and during the follow-up period (2 weeks after treatment). Results: The total effective rate in the Miao medicine bamboo-moxibustion group was 85.71% (24/28), which did not differ significantly from 86.67% (26/30) in the sildenafil group (χ^2=3.291, P=0.385). Intragroup comparisons: In the Miao medicine bamboo-moxibustion group, there was no statistically significant difference in

T levels before and after treatment (P>0.05), whereas in the sildenafil group, T levels after treatment were higher than before treatment (P<0.05). In both groups, IIEF scores after treatment and during the follow-up period were higher than before treatment (P<0.05). In the Miao medicine bamboo-moxibustion group, there was no statistically significant difference between follow-up and post-treatment IIEF scores (P>0.05), whereas in the sildenafil group, follow-up IIEF scores were lower than post-treatment scores (P<0.05). In the Miao medicine bamboo-moxibustion group, SAS, SDS, and TCM syndrome scores after treatment and at follow-up were lower than before treatment (P<0.05). In the sildenafil group, SAS, SDS, and TCM syndrome scores after treatment and at follow-up showed no statistically significant differences compared with baseline (P>0.05). In the Miao medicine bamboo-moxibustion group, SAS, SDS, and TCM syndrome scores at follow-up were lower than those immediately after treatment (P<0.05). Intergroup comparisons: After treatment, T and IIEF scores in the sildenafil group were higher than those in the Miao medicine bamboo-moxibustion group (P<0.05), whereas SAS, SDS, and TCM syndrome scores in the Miao medicine bamboo-moxibustion group were lower than those in the sildenafil group (P<0.05). During follow-up, SAS, SDS, and TCM syndrome scores in the Miao medicine bamboo-moxibustion group remained lower than those in the sildenafil group (P<0.05), while there was no statistically significant difference in IIEF scores between the two groups (P>0.05). During treatment, 2 patients in the sildenafil group experienced dry mouth, headache, and facial flushing, which were relieved with rest. No serious adverse events occurred in either the sildenafil or the Miao medicine bamboo-moxibustion group. Conclusion: Miao medicine bamboo-moxibustion and sildenafil have comparable efficacy in the treatment of ED. Miao medicine bamboo-moxibustion has greater advantages than sildenafil in improving short- and long-term anxiety and depression symptoms, as well as TCM syndrome scores in patients with ED, whereas sildenafil is superior to Miao medicine bamboo-moxibustion in improving T levels and short-term erectile function.

Full Text

Clinical Efficacy Study on the Treatment of Erectile Dysfunction with Miao Medicine Zhuzhi Medicinal Moxibustion Therapy

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Abstract

Background: Erectile dysfunction (ED) has a high incidence and causes significant harm. Miao medicine Zhuzhi medicinal moxibustion therapy belongs to the traditional "moxibustion with medication interposed" and is commonly used in clinical practice for ED treatment, but lacks clinical evidence.

Objective: To explore the clinical efficacy of Miao medicine Zhuzhi medicinal moxibustion therapy in treating ED.

Methods: Sixty ED patients from the outpatient departments of Acupuncture-Moxibustion and Urology at the First Affiliated Hospital of Guizhou University of Traditional Chinese Medicine between December 2021 and March 2024 were randomly divided into a sildenafil group and a Miao medicine Zhuzhi medicinal moxibustion group, with 30 cases in each group. The sildenafil group received 50 mg oral sildenafil citrate 1 hour before sexual activity. The moxibustion group received indirect moxibustion at acupoints CV6 (Qihai), CV4 (Guanyuan), CV3 (Zhongji), KI12 (Dahe), and CV2 (Qugu); and BL23 (Shenshu), BL32 (Ciliao), BL30 (Baihuanshu), BL34 (Xialiao), and BL54 (Zhibian). The two sets of acupoints were used alternately every other day, with each session lasting 40 minutes. Both groups were treated for 30 days. After treatment, therapeutic efficacy was evaluated, and changes in serum testosterone (T) levels, International Index of Erectile Function (IIEF) scores, Self-Rating Anxiety Scale (SAS) scores, Self-Rating Depression Scale (SDS) scores, and TCM clinical syndrome scores were compared between groups before treatment, after treatment, and during follow-up (2 weeks post-treatment).

Results: The total effective rate was 85.71% (24/28) in the moxibustion group and 86.67% (26/30) in the sildenafil group, with no statistically significant difference (χ^2=3.291, P=0.385). Intra-group comparisons showed no significant difference in T levels before and after treatment in the moxibustion group (P>0.05), while T levels increased significantly in the sildenafil group post-treatment (P<0.05). IIEF scores in both groups increased after treatment and during follow-up compared with baseline (P<0.05). The moxibustion group showed no significant difference in IIEF scores between follow-up and post-treatment (P>0.05), whereas the sildenafil group showed decreased IIEF scores during follow-up compared with post-treatment (P<0.05). SAS, SDS, and TCM syndrome scores in the moxibustion group decreased significantly after treatment and during follow-up (P<0.05), with further reductions during follow-up compared with post-treatment (P<0.05). The sildenafil group showed no significant changes in SAS, SDS, or TCM syndrome scores (P>0.05). Inter-group comparisons revealed that post-treatment T and IIEF scores were higher in the sildenafil group (P<0.05), while SAS, SDS, and TCM syndrome scores were lower in the moxibustion group both post-treatment and during follow-up (P<0.05). No sig-

nificant difference in IIEF scores was observed between groups during follow-up (P>0.05). Two cases in the sildenafil group experienced dry mouth, headache, and facial flushing, which resolved with rest. No serious adverse events occurred in either group.

Conclusion: Miao medicine Zhuzhi medicinal moxibustion therapy demonstrates equivalent efficacy to sildenafil for ED treatment. The moxibustion therapy shows greater advantages in improving short-term and long-term anxiety, depression symptoms, and TCM syndrome scores compared with sildenafil, while sildenafil is superior in improving testosterone levels and short-term erectile function.

Keywords: Erectile dysfunction; Miao medicine Zhuzhi medicinal moxibustion; Sildenafil; Comparative effectiveness research

Introduction

Erectile dysfunction (ED) is defined as the persistent and recurrent inability to achieve or maintain satisfactory penile erection [1]. Studies indicate that the incidence of ED ranges from 32% to 80% [2], yet the diagnosis and treatment rate remains below 10%, causing significant physical and psychological harm to men [3]. Western medicine primarily treats ED with oral phosphodiesterase type 5 inhibitors, but these medications often create drug dependency issues [4]. Traditional Chinese medicine has a long history of treating ED, with numerous practitioners demonstrating significant efficacy using moxibustion. However, current moxibustion protocols lack standardization. This study selected the ED formula from *Miao Medicine Traditional Disease Classification and Treatment* as the foundational moxibustion prescription.

Miao medicine Zhuzhi medicinal moxibustion therapy belongs to the traditional "moxibustion with medication interposed," representing a unique medical technique that combines the therapeutic actions of moxibustion, acupoints, and herbal medicine [5]. In 2019, this technique was incorporated into the National Key Research and Development Program (2019YFC1708403) for systematic standardization and research. Concurrently, it was adopted as a new technology project at the First Affiliated Hospital of Guizhou University of Traditional Chinese Medicine for treating reproductive system diseases, achieving favorable clinical outcomes. However, clinical evidence remains insufficient. Therefore, this study employed oral sildenafil citrate as a control to objectively evaluate the clinical efficacy of Miao medicine Zhuzhi medicinal moxibustion for ED.

Methods

Study Design

This exploratory trial enrolled 60 patients using the minimum sample size calculation method [6]. Patients were selected from the outpatient departments of Acupuncture-Moxibustion and Urology at the First Affiliated Hospital of Guizhou University of Traditional Chinese Medicine between December 2021 and March 2024. A randomized controlled trial design was implemented, with participants allocated to either the sildenafil group or the Miao medicine Zhuzhi medicinal moxibustion group (30 cases each) using a random number table method.

This study strictly adhered to ethical principles and was comprehensively reviewed and approved by the Ethics Committee of the First Affiliated Hospital of Guizhou University of Traditional Chinese Medicine (Approval No.: KS2023269). All participants signed informed consent forms agreeing to participate in the trial.

Participant Criteria

Inclusion criteria: (1) Met both TCM and Western medicine diagnostic criteria for ED; (2) IIEF score of 8-21 points with disease duration $ $3 months; (3) Age 20-55 years; (4) Had a stable sexual partner for >3 months; (5) No relevant treatment within 1 month before enrollment; (6) Normal or reduced serum testosterone levels; (7) Signed informed consent.

Exclusion criteria: (1) Organic damage; (2) Severe cardiovascular, cerebrovascular, hepatic, renal, hematological, endocrine, or psychiatric diseases; (3) Inability of spouse to cooperate fully; (4) Allergy to study medications.

Elimination and dropout criteria: (1) Failure to follow the treatment protocol after enrollment; (2) Inability to complete the trial due to personal reasons.

Diagnostic Criteria

TCM diagnostic criteria: Based on *Internal Medicine of Traditional Chinese Medicine* [7], ED was classified as: (1) Decline of life gate fire syndrome: inability to achieve erection, accompanied by aversion to cold, cold limbs, sore and weak lower back and knees, clear and profuse urine; pale and swollen tongue with thin white coating; deep and weak pulse. (2) Yin deficiency with effulgent fire syndrome: weak and flaccid penis, premature ejaculation, sore lower back and knees, dizziness, forgetfulness, five-center heat, tinnitus; red tongue with scant coating; thin and weak pulse. (3) Damp-heat pouring downward syndrome: flaccid penis, short and red urine, damp scrotum, heavy and sore lower limbs; yellow and greasy tongue coating; slippery and rapid pulse. (4) Liver qi stagnation syndrome: inability to achieve erection, depression, irritability, distending pain in hypochondriac regions; red tongue with thin coating; wiry

pulse. (5) Heart-spleen deficiency syndrome: inability to achieve erection, palpitations, abdominal distension, loose stools, poor appetite; pale tongue with thin white coating; thin and weak pulse. (6) Fear and fright injuring kidney syndrome: weak erection, frequent nightmares, palpitations, timidity, suspicion; pale tongue with thin white coating; wiry and thin pulse.

Western medicine diagnostic criteria: Based on the *Chinese Guidelines for Diagnosis and Treatment of Andrological Diseases* [8], defined as inability to achieve or maintain sufficient penile rigidity and duration to complete satisfactory sexual intercourse for $ $3 months.

Interventions

Miao medicine Zhuzhi medicinal moxibustion group: The herbal powder composition included: Saoyanggu, Verbena, Goat horn, Qianjinba, and Cinnamon in a 6:2:2:3:2 ratio, ground into fine powder. The procedure was: (1) Mix 25 mL of ginger juice with 15 g of herbal powder, place in a bamboo ring, and compress into a cake with a spoon. (2) Place 3 g of moxa wool into a moxa cone mold and compress to form a cone. (3) Place the moxa cone on the herbal cake in the bamboo ring, ignite for approximately 12 minutes of preheating to complete the moxibustion pot preparation. (4) After the moxa cone burned out, remove the ash with tweezers into a curved dish and replace with a new cone. (5) For acupoint set one, patients assumed a supine position with abdomen exposed; three moxibustion pots were placed between CV6 and CV4, between CV3 and KI12, and on CV2, with three cones applied. For acupoint set two, patients assumed a prone position with lumbosacral region exposed; eight moxibustion pots were placed on BL23, BL32, between BL34 and BL30, and on BL54, with three cones applied. If patients experienced burning pain, practitioners could adjust, move, or lift the moxibustion pot until the temperature decreased before reapplying. (6) After completing three cones, wipe the area with a dry towel. (7) Instruct patients to rest supine for 10 minutes and avoid wind-cold exposure post-treatment.

Treatment course: Participants received treatment on one set of acupoints per session (acupoint locations based on the 13th Five-Year Plan textbook *Meridian and Acupoint Studies* [9]), starting with set one. The two sets were alternated every other day, 40 minutes per session, for 15 sessions over 30 days.

Sildenafil group: Patients received oral sildenafil citrate tablets (National Drug Approval No. H20143255, manufactured by Guangzhou Baiyunshan Pharmaceutical Co., Ltd., specification: 50 mg/tablet) 1 hour before sexual activity, with efficacy observed after 30 days.

Outcome Measures

Efficacy evaluation: Based on *Guiding Principles for Clinical Research of New Chinese Medicines* [10] and IIEF scoring [11]. The IIEF total score is 25 points: 12-21 indicates mild, 8-11 moderate, and 5-7 severe ED. Cure: IIEF

score >21; Markedly effective: increase of 7-14 points; Effective: increase of 4-6 points; Ineffective: increase <4 points. Total effective rate = (Effective + Markedly effective + Cure) / total cases × 100%.

Observation indicators: (1) IIEF score [12]: assessed erectile confidence, successful penetration frequency, maintenance ability, and sexual satisfaction; evaluated 1 day before treatment, 4 weeks after treatment, and during follow-up. (2) Serum testosterone (T): reference range 1.75-7.81 ng/mL [13]; measured 1 day before and 4 weeks after treatment. (3) Self-Rating Anxiety Scale (SAS) [14]: 20-item scale reflecting subjective anxiety, with 15 positive and 5 reverse-scored items; raw scores multiplied by 1.25 yield standard scores, with 53-100 indicating anxiety (higher scores = greater anxiety); evaluated 1 day before treatment, 4 weeks after treatment, and during follow-up. (4) Self-Rating Depression Scale (SDS) [14]: 20-item scale with 15 positive and 5 reverse-scored items; scoring method same as SAS, with 53-100 indicating depression; evaluated at same timepoints. (5) TCM clinical syndrome score [15]: main symptoms scored 2, 4, 6 points for mild, moderate, severe; secondary symptoms scored 1, 2, 3 points; higher scores indicate more severe symptoms; evaluated 1 day before treatment, 4 weeks after treatment, and during follow-up.

Adverse events: All occurrences of burns, local infections, allergies, and other adverse events were recorded with timing, severity, interventions, and outcomes.

Statistical Analysis

SPSS 22.0 was used for statistical analysis. Normally distributed measurement data were expressed as ($\bar{x}\pm s$), with inter-group and intra-group comparisons using t-tests and repeated measures ANOVA for multiple groups. Non-normally distributed data were described as M(P25,P75) with non-parametric tests for inter-group and intra-group comparisons. Count data were compared using χ^2 tests. $P<0.05$ indicated statistical significance.

Results

Comparison of Baseline Characteristics

Two patients in the moxibustion group withdrew due to long travel distances, leaving 28 cases. The sildenafil group included 30 cases. No statistically significant differences were observed between groups in age, disease duration, or syndrome type distribution ($P>0.05$) .

Comparison of Efficacy

The total effective rate was 85.71% (24/28) in the moxibustion group and 86.67% (26/30) in the sildenafil group, with no statistically significant difference between groups ($\chi^2=3.291$, $P=0.385$) .

Comparison of Testosterone Levels

No statistically significant difference in testosterone levels was observed before and after treatment in the moxibustion group (P>0.05). Testosterone levels increased significantly in the sildenafil group post-treatment (P<0.05). No significant difference existed between groups at baseline (P>0.05), but post-treatment testosterone was significantly higher in the sildenafil group (P<0.05) .

Comparison of IIEF Scores

A significant interaction between group and time was observed for IIEF scores (P_{interaction}<0.05). The main effect of group was not significant (P_{between}>0.05), while the main effect of time was significant (P_{time}<0.05). IIEF scores increased significantly after treatment and during follow-up in both groups compared with baseline (P<0.05). No significant difference was observed between follow-up and post-treatment in the moxibustion group (P>0.05), whereas the sildenafil group showed decreased IIEF scores during follow-up compared with post-treatment (P<0.05). No significant difference existed between groups at baseline (P>0.05), but post-treatment IIEF scores were higher in the sildenafil group (P<0.05). No significant difference was observed between groups during follow-up (P>0.05) .

Comparison of SAS Scores

A significant interaction between group and time was observed for SAS scores (P_{interaction}<0.05), with significant main effects for both group (P_{between}<0.05) and time (P_{time}<0.05). SAS scores decreased significantly after treatment and during follow-up in the moxibustion group (P<0.05), with further reductions during follow-up compared with post-treatment (P<0.05). No significant changes were observed in the sildenafil group (P>0.05). No significant difference existed between groups at baseline (P>0.05), but SAS scores were significantly lower in the moxibustion group both post-treatment and during follow-up (P<0.05) .

Comparison of SDS Scores

A significant interaction between group and time was observed for SDS scores (P_{interaction}<0.05), with significant main effects for both group (P_{between}<0.05) and time (P_{time}<0.05). SDS scores decreased significantly after treatment and during follow-up in the moxibustion group (P<0.05), with further reductions during follow-up compared with post-treatment (P<0.05). No significant changes were observed in the sildenafil group (P>0.05). No significant difference existed between groups at baseline (P>0.05), but SDS scores were significantly lower in the moxibustion group both post-treatment and during follow-up (P<0.05) .

Comparison of TCM Syndrome Scores

A significant interaction between group and time was observed for TCM syndrome scores (P_{interaction}<0.05), with significant main effects for both group (P_{between}<0.05) and time (P_{time}<0.05). TCM syndrome scores decreased significantly after treatment and during follow-up in the moxibustion group (P<0.05), with further reductions during follow-up compared with post-treatment (P<0.05). No significant changes were observed in the sildenafil group (P>0.05). No significant difference existed between groups at baseline (P>0.05), but TCM syndrome scores were significantly lower in the moxibustion group both post-treatment and during follow-up (P<0.05) .

Adverse Events

Two cases in the sildenafil group experienced dry mouth, headache, and facial flushing, which resolved with rest. No serious adverse events occurred in either group.

Discussion

In TCM, ED belongs to the category of "soft yang syndrome," with the fundamental pathogenesis being kidney deficiency with blood stasis. The *Suwen · Shanggu Tianzhen Lun* states that the kidney is the congenital foundation, storing essence and governing reproduction. In the early stage, ED manifests as deficiency of kidney essence and qi, primarily as kidney qi deficiency. As ancient physicians noted, "Flaccid erection results from excessive sexual activity, gradually draining the genuine yin water of the kidney." In the middle stage, kidney yin deficiency becomes apparent, while the late stage leads to "death of the genuine yang fire in the kidney," resulting in decline of kidney yang. Zhang Jingyue observed that "Essence abundance leads to strong yang; essence decline leads to impotence." Kidney yang serves as the original motive force for penile erection. Weakness of the kidney channel leads to depletion of nutrient blood, and "prolonged illness enters the collaterals," causing blood stasis that deprives penile collaterals of nourishment [16], ultimately producing kidney deficiency with blood stasis. Blood stasis is both a pathological product and a pathogenic factor, making this condition a complex of deficiency and excess, with simultaneous root and branch pathology.

Research surveys indicate that ED patients experience various adverse psychological states [17], and ED can cause anxiety and depression, which in turn worsen erectile dysfunction [18], creating a vicious cycle [19]. Therefore, this study used IIEF, SAS, and SDS scales to evaluate erectile function and psychological status. Meta-analysis shows that oral sildenafil effectively improves erectile function in ED patients [20], making it an appropriate positive control for objectively evaluating moxibustion therapy.

The results demonstrate that Miao medicine Zhuzhi medicinal moxibustion is equivalent to sildenafil in treating ED. Post-treatment and follow-up IIEF scores,

SAS scores, SDS scores, and TCM syndrome scores all improved significantly in the moxibustion group, indicating advantages over sildenafil in improving short-term and long-term erectile function, anxiety, depression symptoms, and TCM syndrome scores. However, sildenafil was superior in improving testosterone levels and short-term erectile function.

This study found that moxibustion did not significantly increase testosterone levels in ED patients, inconsistent with previous research [27]. Sildenafil' s superiority in improving testosterone and short-term erectile function may be explained by its ability to enhance libido and sexual arousal through central mechanisms [28]. Since sildenafil was administered on-demand in this study, it showed no significant long-term therapeutic effect.

Research indicates that most ED patients experience anxiety and depression [18], and dysfunction of the "brain-heart-kidney-essence chamber" axis is closely related to ED pathogenesis [29]. This study selected bladder meridian acupoints that "enter the brain from the vertex···follow the spine and connect with the kidney." From a TCM perspective, depression pathogenesis primarily manifests as "yang depression," and moxibustion can "support yang to dispel yin haze" and eliminate melancholy by regulating the governor and conception vessels to enhance yang-dispersing effects. Studies show that moxibustion activates local specific receptors and heat-sensitive immune cells, producing local effects that influence distant and systemic responses through neural and humoral pathways [30]. Acupoint stimulation regulates the neuro-endocrine-immune system [31], dilates local capillaries, accelerates blood flow, promotes lymphatic return, affects substance exchange [32], increases local temperature [33], enhances cellular ATP supply, improves red blood cell oxygen-carrying capacity and mobility, and promotes metabolism [34]. Additionally, Miao medicine Zhuzhi medicinal moxibustion features cumulative effects and regular treatment, increasing patient communication and reducing anxiety and depression, which may explain its superior effects on psychological and TCM syndrome scores.

Miao medicine Zhuzhi medicinal moxibustion treats ED through the combination of medicine, moxibustion, and acupoints. Moxibustion clearly improves erectile function [21-22]. This formula follows the principle of tonifying deficiency and draining excess, treating both root and branch. Qianjinba serves as the sovereign drug to activate blood, dispel wind, and tonify liver and kidney, combined with cinnamon to warm kidney and strengthen yang. Saoyanggu and Verbena serve as ministerial drugs to enhance cooling blood, dispersing stasis, and breaking blood stasis. Cinnamon, as the assistant drug, warms qi-blood and supplements fire to assist yang, further promoting blood activation. Goat horn, as the envoy drug, calms liver wind and cools blood to relieve spasm. Additionally, acrid, bitter, and warm Artemisia argyi warms meridians and dispels cold, penetrating all meridians to treat disease and resolve deep-rooted conditions. Ginger, with its warm and penetrating nature, warms meridians and collaterals. Mixed with herbal powder as an interposed substance, it enhances moxibustion power, enabling heat to penetrate meridians and viscera.

These combined medicinals tonify kidney and secure essence, strengthen yang and raise fire to treat the root, while removing old stagnation and dispelling blood stasis to treat the branch, addressing the ultimate pathogenesis of blood stasis obstructing collaterals in ED. Previous research has confirmed that local acupoint acupuncture significantly treats ED [23-24], so this study applied moxibustion to local acupoints.

The *Lingshu* states: "When the thoroughfare and conception vessels are not abundant, the ancestral sinew cannot form." The conception vessel governs yin essence to nourish the uterus and essence chamber, and its pathway is closely related to the external genitalia [25]. The kidney governs reproduction, connects with the thoroughfare vessel, and stores essence. Conception vessel acupoint CV6 (Qihai) tonifies kidney and secures essence, nourishes yuan and restores yang. CV4 (Guanyuan) stores original yin and original yang, while CV3 (Zhongji) intersects with foot yin meridians. Combined, these two acupoints internally connect with the essence chamber, nourish original qi, assist qi, and warm the essence palace. The kidney meridian runs parallel to the thoroughfare vessel, and KI12 (Dahe) is where qi and blood are abundant. Combined with CV4, it facilitates smooth qi flow to nourish the ancestral sinew. Coordinated with CV2 (Qugu), the intersection of the governor and conception vessels with the liver meridian, it supplements liver and kidney and regulates the governor and conception vessels. BL23 (Shenshu), BL32 (Ciliao), BL30 (Baihuanshu), BL34 (Xialiao), and BL54 (Zhibian) are bladder meridian acupoints. The *Suwen · Qibing Lun* records: "The uterine collaterals connect with the kidney." The bladder meridian and kidney meridian are interior-exterior paired meridians that nourish original qi and regulate channel qi. Alternating anterior and posterior treatment embodies the concept of "drawing yin from yang," using "abdominal and dorsal yin-yang point pairing" to regulate human balance and treat the root.

Miao medicine Zhuzhi medicinal moxibustion combines the three therapeutic actions of moxibustion, acupoints, and medicinals to achieve warming supplementation, warming penetration, and warming transformation [26], aiming to tonify deficiency and drain excess, treat both root and branch, and address the pathological characteristics of kidney deficiency as the root and blood stasis as the branch in ED.

In conclusion, Miao medicine Zhuzhi medicinal moxibustion improves short-term and long-term erectile function in ED patients and demonstrates greater advantages over sildenafil in improving anxiety, depression symptoms, and TCM syndrome scores. This therapy is suitable for different ED syndrome types, shows high patient acceptance, and can be further promoted in primary medical institutions for ED treatment. However, this study had a small sample size and the mechanism remains unclear. Future multi-center, large-sample trials should investigate the underlying mechanisms. Normal penile erection depends on regulation of the "hypothalamus-pituitary-gonadal" axis and involves hemodynamic changes [35]; therefore, future studies could objectively evaluate efficacy using

vascular ultrasound and thermography technologies.

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