Research Progress on Nonsurgical Treatment of Postpartum Pelvic Floor Dysfunction Diseases

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Abstract: Pelvic floor dysfunction (PFD) commonly affects women, reducing health and life quality. This review addresses the chronic impact of PFD, which results from weakened pelvic support and leads to organ prolapse and other issues. Globally noted, it covers symptoms like pelvic organ prolapse and incontinence, affecting postpartum women who may lack awareness. It stresses early detection and nonsurgical treatments, summarizing causes, classifications, and modern rehab strategies.

***Keywords*:** pelvic floor dysfunction, postpartum health impact, nonsurgical interventions, early detection and awareness, rehabilitation innovations

1. Introduction

Pelvic Floor Dysfunction (PFD) is a common chronic issue in women, seriously impacting health and quality of life [1]. PFD typically arises from weakened pelvic floor muscles and structures, causing changes in pelvic organ position and function. Its link to complications like urinary incontinence and organ prolapse is drawing growing global health concern [2]. Despite a high incidence of PFD among postpartum women, awareness and concern are insufficient.

2. Epidemiology and Pathogenesis

Given China's aging demographic and fertility policy shifts, a rising PFD prevalence is expected [3]. With a 50% incidence rate of urinary incontinence among postmenopausal women, PFD poses a significant health challenge [4]. Pregnancy and childbirth significantly affect the pelvic floor, increasing pressure as the uterus expands, which may diminish muscle strength and raise incontinence risks [5].

3. Common Conditions Postpartum

Postpartum pelvic floor disorders are a group of prevalent conditions that can significantly diminish the quality of life for women, comprising pelvic organ prolapse, urinary incontinence, and sexual dysfunction.

(1) Stress Urinary Incontinence: This form of incontinence is the most frequently observed following childbirth, where involuntary leakage occurs during actions that raise abdominal pressure, such as coughing or laughing [6].

(2) Pelvic Organ Prolapse: Due to pelvic floor laxity or defects, organ descent is common in older women, impacting their position and function [7]. The 2020 Chinese guidelines report that symptomatic POP affects 9.6% of adult women, as surveyed across multiple centers.

(3) Myofascial Pain of the Pelvic Floor: Typically presenting subtly in the early postpartum period and discovered incidentally during check-ups, this pain can lead to complications such as incontinence and prolapse, severely affecting life quality [8].

(4) Bowel Dysfunction: Postpartum bowel issues like functional constipation and fecal incontinence are often linked to dietary and physical activity patterns.

(5) Sexual Intimacy Challenges: Postpartum women may face sexual activity challenges such as dyspareunia and orgasmic disorders, with improvement often taking time. In China, FSD incidence rates at 3, 6, and 12 months postpartum are 62%, 43%, and 48% respectively[8].

4. Diagnostic and Assessment Optimization

Accurate diagnosis and treatment planning for PFD require comprehensive assessments. This includes Modified Oxford Muscle Strength Grading, POP-Q, EMG, clinical exams, ultrasound, MRI, 3D posture analysis, and evaluations of

abdominal and pelvic conditions [9]. Postpartum self-assessments for urinary incontinence, sexual dysfunction, and mental health using tools like the Edinburgh Scale are also beneficial.

The POP-Q system, established by international gynecological and continence societies in 1996, is a globally recognized standard for diagnosing pelvic organ prolapse, widely adopted in China since 2004 [10].

Advancements in pelvic floor ultrasound have made it an essential diagnostic tool, with 3D imaging facilitating early detection of POP. MRI provides a detailed view of pelvic anatomy, though its high cost and contraindications for patients with metal implants limit its routine use [11].

Spinal imbalances may increase pelvic floor pressure and cause muscle fatigue [12]. The 3D posture assessment, using AI and infrared for body modeling without radiation, provides a new diagnostic approach for pelvic floor issues [13].

5. Pelvic Floor Rehabilitation Therapies

Postpartum pelvic floor rehabilitation encompasses a variety of methods, including physical therapy, exercise training, electrical stimulation, and biofeedback, all aimed at strengthening pelvic floor muscles and enhancing quality of life [14].

(1) Pelvic Floor Muscle Training (PFMT): The Kegel exercise, introduced by Arnold Kegel in 1948, involves voluntary contractions of the pelvic floor muscles. Widely used in postpartum recovery and PFD prevention, it enhances nerve and sphincter functions. Studies show that Kegel exercises performed 6 to 8 weeks postpartum significantly increase muscle strength and prevent mild POP in 25% of American women [15].

(2) Pelvic Floor Muscle Biofeedback (PFMB): PFMB utilizes biofeedback devices to guide muscle contractions, correcting techniques and improving training outcomes. It demonstrates superior efficacy in treating urinary incontinence, particularly SUI, compared to Kegel exercises [16].

(3) Pelvic Floor Rehabilitation Devices: Based on the Kegel principle, these devices, such as vaginal weights, provide resistance training to strengthen muscle contractions. Literature indicates these improve symptoms in most patients with urinary incontinence and are suitable for long-term home use.

(4) Pelvic Floor Electrical Stimulation Therapy: This therapy uses low-frequency currents to stimulate pelvic floor muscles and nerves, enhancing muscle contraction strength and elasticity, and improving control, with positive effects on PFD treatment. Often combined with biofeedback and muscle training in clinical practice.

(5) Extracorporeal Magnetic Neurostimulation: This emerging technique uses pulsed magnetic fields for pelvic magnetic stimulation to directly act on pelvic tissues, promoting nerve excitement and muscle contraction, enhancing urethral sphincter strength [17].

(6) Thermoregulation Radiofrequency Technology: Radiofrequency treatment works through tissue thermoremodeling, activating collagen and elastin secretion, and promoting tissue remodeling. Its non-invasive nature and rapid effect make it popular [17].

(7) Laser Therapy: CO2 laser therapy uses pulsed thermal energy to induce collagen contraction and new collagen formation, improving tissue elasticity and showing efficacy in stress urinary incontinence.

(8) Myofascial Manual Therapies (MMT): These manual therapies relax muscles, alleviate spasms, improve blood circulation, and promote metabolism for pain relief, often used in conjunction with other treatment modalities [18].

(9) Exercise Rehabilitation: Prenatal exercises like yoga, dance, and Pilates aim to enhance pelvic proprioception and muscle strength, improving pregnancy outcomes. The WAFF cushion exercise, as an emerging method, improves overall body balance and well-being through unstable surface training [19].

(10) Traditional Chinese Medicine (TCM) Rehabilitation Therapies: TCM methods, such as herbal medicine, acupuncture, fumigation, and acupoint injection, show potential in pelvic floor rehabilitation. Studies indicate that combining electrical stimulation with herbal treatments can enhance physical functions and improve therapeutic outcomes [20].

Postpartum PFD is a multifaceted health challenge affecting women. Nonsurgical interventions, particularly early pelvic floor training and biofeedback, enhance symptom management and life quality. Ongoing validation is needed for diagnostic and treatment technologies. Personalized, bioengineering, and AI-driven approaches, along with clinical trials and patient-focused tools, are shaping the future of care for improved outcomes and quality of life.

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