Stress Urinary Incontinence

Comparative Efficacy Trials

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KEYWORDS

• Stress urinary incontinence (SUI) • Treatment • Comparative efficacy • Review

KEY POINTS

- Weight loss of 5% to 10% of body weight results in more than 50% reduction in weekly stress urinary incontinence episodes.
- Approximately half of women with stress urinary incontinence experience symptom improvement from pelvic floor muscle therapy, compared with less than 10% with expectant management, and 91% after midurethral sling.
- Up to half of women who receive pelvic floor muscle therapy as initial treatment of moderate to severe stress urinary incontinence subsequently pursue surgical management. Surgery offered as first-line intervention is more likely to result in continence and treatment satisfaction in a shorter interval.
- Both retropubic and transobturator approaches to midurethral sling are highly successful procedures for stress urinary incontinence, with high long-term patient satisfaction. Adverse event profiles differ between approaches.
- Patients with contraindications or aversion to surgical mesh can be reassured that a Burch colposuspension or fascial pubovaginal sling result in similar continence rates and perioperative complications compared with midurethral slings.

INTRODUCTION

Almost 16% of community dwelling women in the United States report symptoms of urinary incontinence.[1] Most of these women report symptoms of stress urinary incontinence (SUI), or involuntary urine loss associated with coughing, sneezing, or other physical activity, without a preceding detrusor contraction.[2–4] Some women

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experience only stress-type incontinence, whereas many others report additional leakage symptoms such as urgency urinary incontinence (UUI), or leakage following a sudden and urgent need to void secondary to detrusor spasm. The combination of incontinence mechanisms is referred to as mixed urinary incontinence (MUI). SUI results in significant personal and financial burden for symptomatic women. Three-quarters of women who experience SUI report significant bother from their symptoms, and an estimated 13.6% of American women elect to undergo surgical treatment of SUI.[5]

Management strategies to reduce the burden of SUI include behavioral changes, weight reduction, pelvic floor muscle therapy (PFMT), and various surgical interventions. This article reviews the highest-quality clinical trials comparing contemporary treatment options for women with SUI. When available, results from large multicenter randomized controlled trials (RCTs) are highlighted. In their absence, results from smaller and single-site RCTs are reported, acknowledging their limitations. Clinicians and patients can use this compendium of the highest-quality studies to inform their treatment selection. For each trial, the population characteristics, number of participants, intervention, primary outcome, and notable secondary outcomes are presented. Where systematic reviews or meta-analyses are available, their findings are included as well.

NONSURGICAL MANAGEMENT FOR STRESS URINARY INCONTINENCE

Nonsurgical management strategies targeting SUI offer patients the potential for symptom improvement while avoiding the risk of surgical morbidity, such as perioperative complications, postoperative voiding dysfunction, or mesh exposure. The interventions in this class use behavior or lifestyle modifications such as bladder training, fluid management, and weight loss. Physical therapy targeting optimization of pelvic floor function, often referred to as PFMT, and incontinence pessaries are adjuvants to behavioral modifications. Outcomes of these strategies, used individually or in combination as first-line therapy, were investigated in several randomized trials. Fluid management, a keystone of behavior intervention for bladder symptoms, entails moderating total fluid intake and specifically bladder irritants such as caffeine and alcohol. Fluid management has not been addressed in a clinical trial for SUI treatment. Remaining treatments are addressed later.

Weight Loss

Overweight and obese women who lose 5% to 10% of their body weight can expect significant improvement in SUI.

Obesity is a risk factor for incontinence and imparts a 3-fold to 4-fold risk for SUI.[6,7] Sustained weight reduction among obese and morbidly obese women has shown substantial improvement in their incontinence symptoms in 2 large trials.

The Program to Reduce Incontinence by Diet and Exercise (PRIDE) study randomized 338 women to an intensive 6-month behavioral weight loss program versus a control treatment of 4 educational sessions on weight loss and healthy diet.[8] Both groups received an instruction booklet describing pelvic floor strengthening, incontinence suppression techniques, and bladder diaries. The primary outcome was weekly episodes of SUI reported by bladder diary at 6 months. Women in the weight loss group lost an average of 8% of their body weight, compared with 1.6% in the control group. The mean loss of 8% body weight was associated with a 58% reduction in weekly SUI episodes compared with 33% for controls ($P = .01$) at 6 months. Women in either group who maintained a 5% to 10% weight loss at 18 months were more than