

### STRESS URINARY INCONTINENCE (SUI)

#### 1. Epidemiology, aetiology, pathophysiology

SUI is the involuntary loss of urine on effort or physical exertion, affecting women worldwide with significant social and economic impact. The prevalence peaks between 45–59 years. Risk factors include parity, obesity, previous pelvic surgery, diabetes, pulmonary disease, and metabolic syndrome.

#### 2. Classification

- **Uncomplicated SUI:** No prior SUI surgery, extensive pelvic surgery, radiotherapy, neurogenic lower urinary tract (LUT) dysfunction, significant prolapse, voiding symptoms, or medical conditions affecting the LUT.
- **Complicated SUI:** History of previous incontinence surgery, pelvic irradiation, significant prolapse, voiding dysfunction, neurogenic LUT dysfunction, or congenital abnormalities.

#### 3. Diagnostic Evaluation

- **History and Physical Examination:** A detailed clinical history is the first step in diagnosing SUI. A thorough physical examination is essential, including abdominal, vaginal, perineal, and pelvic floor muscle strength assessment.
- **Patient Questionnaires:** Validated condition-specific questionnaires help screen, categorize, and assess the severity of SUI, although no single questionnaire meets all requirements. They are useful in evaluating treatment response but have inconsistent sensitivity.
- **Post-Void Residual (PVR) Volume:** Measuring PVR volume is crucial, especially in patients with voiding symptoms or complicated SUI. Ultrasound is preferred over catheterization for assessment.
- **Urodynamics:** The role of urodynamic testing remains debated. Testing should be considered in cases with storage symptoms, unclear incontinence type, voiding dysfunction, pelvic organ prolapse (POP), or prior incontinence surgery.
- **Pad Testing:** Pad tests help quantify SUI severity.
- **Imaging:** Imaging can measure bladder neck and urethral mobility, but there is no clinical benefit in routine assessment. It has been studied for evaluating mid-urethral sling (MUS) function, but no imaging test reliably predicts SUI treatment outcomes.

Recommendations	Strength rating
Perform preoperative urodynamic tests in cases of SUI with associated storage symptoms, cases in which the type of incontinence is unclear, cases in which voiding dysfunction is suspected, and cases with associated pelvic organ prolapse or prior surgery for SUI.	Weak
Perform urodynamic tests if the findings may change the choice of invasive treatment.	Weak
Do not use urethral pressure profilometry or leak point pressure to grade severity of incontinence as they are primarily tests of urethral function.	Strong

#### 4. Disease management

##### CONSERVATIVE MANAGEMENT

- **Obesity and Weight Loss:** Obesity is a significant risk factor for LUTS and SUI. Weight loss has been shown to improve UI symptoms, and bariatric surgery is associated with a significant reduction in UI at 11 months and three years.
- **Pelvic Floor Muscle Training (PFMT):** PFMT is used to improve functional and morphological parameters of the pelvic floor, enhancing urethral stability. Studies show that women with SUI in PFMT groups were eight times more likely to report a cure. PFMT significantly reduces leakage episodes and improves QoL.
- **Electroacupuncture:** A systematic review including 15 RCTs found that electroacupuncture improves ICIQ-SF scores and reduces urine leakage compared with sham treatment or other therapies.
- **Pharmacological Management:** **Local estrogen** therapy improves symptoms of SUI in postmenopausal women in the short term. Systemic hormone replacement therapy using conjugated equine estrogens does not improve SUI and may worsen UI. **Duloxetine** has been shown to improve SUI symptoms, but the chances of cure are low. It has a high discontinuation rate due to adverse effects. **Adrenergic Agonists:** A Cochrane review including 22 RCTs found weak evidence that adrenergic agonists may improve SUI.

Recommendations	Strength rating
Offer supervised intensive pelvic floor muscle training (PFMT), lasting at least three months, as first-line therapy to all women with stress urinary incontinence (SUI) or mixed urinary incontinence (including elderly women and pre- and postnatal women).	Strong
Ensure that PFMT programmes are as intensive as possible.	Strong
Balance the efficacy and lack of adverse events from PFMT against the expected effect and complications from invasive surgery for SUI.	Strong
Consider electrical stimulation for treatment of SUI, or as an adjunct for teaching PFM contraction.	Weak

##### SURGICAL MANAGEMENT

- **General Considerations:** The use of polypropylene mesh for synthetic MUS has been scrutinized due to long-term complications. National and local regulations regarding mesh surgery should be followed. Clinicians should ensure patients are fully informed about treatment options and risks.
- **Surgery for Women with Uncomplicated SUI:** Surgical procedures for uncomplicated SUI include open or laparoscopic colposuspension, synthetic mid-urethral slings, and autologous slings.
- **Surgery for Recurrent SUI:** Women with persistent or recurrent SUI after prior surgery may be offered adjustable slings, urethral bulking agents, or alternative procedures such as artificial urinary sphincters.
- **Surgery in Special Populations:** Obese women have higher surgical risk and lower success rates. Elderly women have an increased risk of complications and a lower likelihood of cure compared to younger patients.

Recommendations	Strength rating
Offer patients who have explored/failed conservative treatment options a choice of different surgical procedures, where appropriate, and discuss the advantages and disadvantages of each approach.	Strong
Use new devices for the treatment of stress urinary incontinence (SUI) only as part of a structured research programme. Their outcomes must be monitored in a registry or as part of a well-regulated research trial.	Strong
Employ a shared decision-making approach when deciding on appropriate treatment for SUI.	Strong

Recommendation	Strength rating
Offer colposuspension (open or laparoscopic) to women seeking surgical treatment for SUI following a thorough discussion of the risks and benefits relative to other surgical modalities.	Strong

Recommendation	Strength rating
Offer autologous sling placement to women seeking surgical treatment for stress urinary incontinence following a thorough discussion of the risks and benefits relative to other surgical modalities.	Strong

Recommendations	Strength rating
Offer urethral bulking agents to women seeking surgical treatment for stress urinary incontinence (SUI) following a thorough discussion of the risks and benefits relative to other surgical modalities.	Strong
Offer urethral bulking agents to women with SUI who request a low-risk procedure with the understanding that efficacy is lower than other surgical procedures, repeat injections are likely, and long-term durability and safety are not established.	Strong
Do not offer autologous fat and hyaluronic acid as urethral bulking agents due to the higher risk of adverse events.	Strong

Recommendations	Strength rating
Offer a mid-urethral sling (MUS) to women seeking surgical treatment for stress urinary incontinence following a thorough discussion of the risks and benefits relative to other surgical modalities.	Strong
Inform women that long-term outcomes from MUS inserted by the retropubic route are superior to those inserted via the transobturator route.	Strong
Inform women of the complications associated with MUS procedures and discuss all alternative treatments in the light of recent publicity surrounding surgical mesh.	Strong
Inform women who are being offered single-incision slings (Ajust® and Altis®), that short term efficacy appears equivalent compared to conventional MUS.	Strong
Inform women who are being offered a single-incision sling that long-term efficacy remains uncertain.	Strong