

Treatment of Urinary Incontinence in Women: A Challenge between Conservative and Surgical Therapy

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Urinary incontinence (UI) is a socially embarrassing condition, causing withdrawal from social situations and reduced quality of life. This withdrawal from regular physical activities may be a threat to women's general health predisposing to osteoporosis, high blood pressure, coronary heart disease, depression and anxiety [1]. UI is defined by the International Continence Society as a condition in which involuntary loss of urine is a social or hygienic problem and is objectively demonstrable [2]. UI is more common in women than in men and affects women of all ages. Prevalence rate in women between 15 and 64 years of age vary from 10% to 30% which increases with age [3-5]. The prevalence of UI is significantly higher for individuals living in nursing homes, compared to community settings, with rates ranging from 43% to 77% [5]. The severity of incontinence also increases with age [6,7]. While a specific etiologic cause of urinary incontinence is often identifiable in younger persons, a multifactorial syndrome is more likely in older persons. In the older population, UI may represent the intersection of neuro-urinary pathology, age-related factors, comorbid conditions, medications and functional and cognitive impairments [2]. Several physiologic changes occur in the lower urinary tract of both continent and incontinent older persons that predispose to urinary incontinence: detrusor overactivity, decreased bladder contractility, decreased flow rate, increased post void residual volume and change in diurnal fluid excretion (due to peripheral edema, medications, age-related changes in the renal filtration rate and alterations in diurnal levels of anti-diuretic hormone and atrial natriuretic factor) [8-10]. In addition, low estrogen levels after menopause result in atrophy of the superficial and intermediate layers of the urethral mucosal epithelium with subsequent atrophic urethritis, diminished urethral mucosal seal, loss of compliance and possible irritation. However; these factors do not necessarily result in urinary incontinence and incontinence is not a part of "normal" aging [11-13].

The most common type of UI in women is stress incontinence (SUI), defined as the involuntary loss of urine during coughing, sneezing or physical exertion such as sporting activities or sudden change in position. Genuine stress incontinence (GSI) is urodynamically proved involuntary loss of urine when the intravesical pressure exceeds that of the urethra with no simultaneous detrusor contraction [2]. Established risk factors for UI are childbearing (in younger women), obesity, strenuous work, old age and functional impairment (in older women) [14-17]. Other suggested risk factors include a history of childhood enuresis, weak connective tissue, diabetes, stroke, depression, fecal incontinence, vaginal delivery, episiotomy, estrogen depletion, genitourinary surgery and radiation. There may also be a familial predisposition [14,18-21]. The medical morbidity associated with UI includes perineal *candida* infection, cellulitis, pressure ulcers, urinary tract infections from urinary retention and indwelling catheters, sleep interruption and psychological problems. Furthermore, although only a quarter of all women with UI seek help, the approximate annual cost of the condition in the United States has been estimated at \$11.2

billion in the community and \$5.2 billion in nursing homes [22,23]. Many surgical procedures have been used in the management of SUI, including colposuspension, needle suspension, sling procedures and anterior colporrhaphy. Reported cure rates of surgery are 23-96% [24-27]. However, recent publications with longer evaluation periods and more objective methodology suggest that the long-term cure rates may be as low as 33% [28]. With the high prevalence of SUI, the understanding that surgery with its attendant risks is not appropriate for all patients and the possible overestimation of the cure rates of surgery, interest in conservative treatments has been revived [29]. Several conservative treatment options are available for the management of SUI such as physical therapy, behavioral modification, pharmaceutical interventions and hormone replacement therapy [11,30,31]. Physical therapies, particularly pelvic floor muscle (PFM) exercises (including 3 sets of 8-12 slow velocity contractions sustained for 6-8 seconds each, performed 3-4 times/week and continued for 15-20 weeks) with or without other treatment adjuncts such as vaginal cones, bio- or myofeedback, and electrical stimulation, are the mainstay of conservative management for the treatment and prevention of SUI [32-35]. The theoretical basis of these physical therapies, for the treatment of PFM dysfunction associated with SUI, is that facilitation and strengthening of the PFM may improve efficiency of the sphincteric action around the urethra and support the pelvic organs. It has been suggested that a strong contraction of the PFM will clamp the pressure rise in the urethra as it is pressed against the pubic symphysis. In addition, it seems that a PFM contraction in response to a rise in intra-abdominal pressure may prevent urethral descent. PFM training may also result in hypertrophy of the muscles, increasing the external mechanical pressure on the urethra and improving structural support for the pelvic organs [31,32,34]. Recent reviews of conservative management and prevention of SUI show very promising short-term and long-term results [28,29,33].

In conclusion, conservative therapy with primary focus on PFM exercises seems to have no side-effects and should be considered the first choice of treatment for SUI. If the outcome of conservative management is unsatisfactory, the patient can be referred for further evaluation and possible surgical intervention.

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