



Advances in Surgical Treatment of Stress Urinary Incontinence

by Dr. Vivian Chan, AC, O & G, QEH

Urinary incontinence is a complaint of any involuntary leakage of urine. Stress urinary incontinence (SUI) is a symptom in which patient suffers from involuntary leakage on effort or exertion, or on sneezing or coughing, while urodynamic stress incontinence (USI) is a urodynamic diagnosis where there is involuntary leakage of urine during increased abdominal pressure, in the absence of a detrusor contraction. Prevalence of urinary incontinence varies with the population sampled and the definition used for incontinence. According to Pang et. al. (2005), the prevalence of stress urinary incontinence in Hong Kong was 33.9%, while that of urge urinary incontinence was 15.5%.

For the initial assessment of patients complaining of urinary incontinence, history and physical examination are important. Symptoms assessment questionnaire helps to assess the severity of the symptoms as well as impact on the quality of life. Abdominal examination should be performed to look for any palpable bladder. Gynaecological examination may reveal bladder neck hypermobility and concomitant pelvic organ prolapse. Neurological examination should be performed if indicated. Urinalysis should be done to rule out infection. Bladder diary helps in assessing the frequency of incontinence. Urodynamic study should be performed in case of mixed symptoms, failed response to conservative measures or surgery is anticipated.

Conservative management is still the first-line treatment for women with stress incontinence. Behavioral modification, pelvic floor exercises, biofeedback (perineometer, vaginal cones) and electrical stimulation treatment are commonly used. Pharmacological treatment (e.g. Duloxetine) is not yet available in Hong Kong. Surgery should be considered in case of failed conservative management. Paravaginal repair, bladder neck suspensions and Marshall-Marchetti-Krantz procedure were previously used for treatment of urodynamic stress incontinence but with low cure rates. Burch's colposuspension (laparoscopic/ abdominal approach) was once the gold standard for treatment of urodynamic stress incontinence. Both the objective and subjective cure rates are 70-90% (up to 5 years after operation). There is no significant difference in the successful rate between the laparoscopic and open approach. Complications include detrusor overactivity, voiding difficulty and apical/ posterior compartment prolapse. Midurethral slings are now commonly used for treating urodynamic stress incontinence. Tension-free vaginal tape (TVT) was first described by Ulmsten et. al. in 1996. It is a polypropylene tape which is put underneath the urethra through retropubic route, aiming at tension free urethral support. Delorme described the 'outside-in' transobturator approach (TOT) in 2001, by inserting the tape under the urethra through small incisions in the groin area. In 2003, de Leval described a variation of the insertion technique - 'inside-out' transobturator approach (TVT-O). Complications include voiding difficulty, haemorrhage, bladder perforation and possible mesh rejection/ erosion. Midurethral slings are now replacing Burch's colposuspension as the gold standard in treatment of urodynamic stress incontinence. It is easy to perform with short operation time and hospital stay, less postoperative pain but with similar cure rate as Burch's colposuspension. Peri-urethral injection is the use of injectable bulk forming agents (e.g. fat, collagen, silicone) to increase the urethral closure pressure. The successful rate is low (25-60%) and repeated injections is required.

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Artificial sphincter is the last resort and only be used when all other operations have failed.

Surgical correction of urodynamic stress incontinence should be delayed until the woman has completed her family. However, pregnancy after suburethral tape does not seem to expose the patients to important urinary or obstetrical complications. Potential risk of urinary tract infection, owing to possible urethral obstruction and urinary retention, should be bear in mind. Vaginal delivery does not seem to increase the risk of recurrence when compared to caesarean section. Long-term studies are required to determine the possible effects of the mode of delivery on recurrence.

Nursing Management in Female Stress Urinary Incontinence

By Anny Tong, APN, O & G, QEH

Female urinary incontinence is common in worldwide. According to Markland, et al¹ there are 51.5% of females in US having urinary incontinence and the trend has been raised from 49.5% in 2001-2002 to 53.4% in 2007 - 2008. The prevalence of stress urinary incontinence in Hong Kong also has been raised from 21% in 1996² to 33.9% in 2005³. Consequences of urinary incontinence may lead to impacts on quality of life of individual e.g. reduced self esteem, embarrassment and impaired social activities, etc. Therefore, nurses play an important role in first line conservative management in improving quality of life for females suffering from continence problems.

Assessment

History

Includes the type of incontinence, duration of incontinence, any voiding problems, severity of symptoms, medical / neurological / surgical / obstetrical / gynaecological history, social / psychological history and any medication used.

Physical examination

Includes to note for any bladder distension, pelvic examination for any pelvic mass and pelvic organ prolapse, cough stress test to note for any urinary leakage, rectal examination for any fecal impaction and any mobility problem.

Basic investigation

Includes urine for urinalysis and culture to rule out urinary tract infection, uroflowmetry which is a non-invasive procedure to measure urine voided per unit time, post-void residual measurement, pad test to quantify urine loss after having a standardized activities and frequency volume chart to record one's drinking and voiding pattern, the amount and condition of leakage.

Nursing management (first line conservative treatment)

It can be divided into general advises and specific therapeutic management. For general measures, women are advised to avoid activities that can increase intra-abdominal pressure e.g. void by straining or heavy lifting, etc. Urinary tract infection and constipation should be treated accordingly. Clothing modification, improve toilet access and maximize mobility are strategies for old frailty women.

Specific therapeutic measure

Pelvic floor exercise (PFE)

Pelvic floor is composed of muscle fibres of the levator ani, the coccygeus and associated connective tissue within span the area underneath the pelvis. It is used to provide support to the pelvic organs. PFE was first described by Kegel in 1948. The aims of exercise are to strengthen intrinsic striated muscle of urethra at rest and extrinsic periurethral striated muscle on stress so as to control stress urinary incontinence. However, the effectiveness of the exercise depends on the motivation of women, regularity and the correct method of the exercise. The most common errors are to contract the abdominal and hip adductors⁴, therefore appropriate instruction, assessment and encouragement are essential to obtain satisfactory results.

Other than pelvic floor exercise, vaginal cones, electrical stimulation and biofeedback are modalities that used for conservative rehabilitation therapy.

Vaginal cones

They are in various weights in the form of weighted cones and are used to strengthen the pelvic floor muscle

Biofeedback

It provides the awareness of the physiological action of the pelvic floor muscle by visual, tactile or auditory means

Electrical stimulation

Placement of an electrical stimulator near the pudendal nerves can make the striated muscles around the urethra to contract.

Most of the probes of the above devices have to be inserted into vagina/ rectum in order to provide therapeutic effect and there may be side effects e.g. vaginal tenderness, vaginal bleeding or vaginitis etc. Although the above devices have been proved to improve the condition in stress urinary incontinence, there were no significant differences when compared with pelvic floor exercise alone⁵⁻⁶.

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Extracorporeal electromagnetic innervation ExMI

It is used to stimulate the pelvic floor / or sacral roots by placing them within the electromagnetic field. Women can sit on the magnetic chair comfortably without putting any probes into vagina or rectum. There have been studies stating ExMI can improve urinary incontinence⁷⁻⁸, however, Gilling, et. al found that the improvements in active ExMI therapy was not statistically significant as in the sham therapy⁹.

Nursing management in women pending surgery

If women are not satisfied with conservative therapy, surgery may be another option. The role of nurse will be aimed on providing physical and psychological preparation to women pending for surgeries. Pre-operatively, nurse can reinforce the nature, risk and complications of surgery as stated by urogynaecologists. Pictures of wound sites and how the tapes are placed can be introduced. Volunteers who had similar surgeries done are introduced to women pending surgeries so as to gain mutual support. Moreover, visiting hours, ward routines and post-operative nursing care in ward e.g care of Foley's catheter and checking of post-void residual are also introduced. Furthermore, in order to facilitate an optimal bladder capacity of women, regular drinking and voiding pattern is also advised. Abstain sexual intercourse and swimming for initial 8 weeks after surgery are also advised to promote healing of vaginal wound. After discharge from hospital, women are arranged to nurse clinic for initial check up on external wounds, any voiding problem, post-void residual and any signs and symptoms of infections e.g. urinary tract infection or vaginal infection. Good drinking and voiding habit, avoid activities that increase intra-abdominal pressure e.g void by straining, constipation and heavy lifting are reinforced.

Conclusion

Stress urinary incontinence is common in women. Nurses play an important role in providing first line conservative management to relieve the embarrassing urinary problem and improving quality of life of incontinent women. Moreover, nurses also play an informative role in providing pre-operative and post-operative education to women agreed for continent surgery.

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Low Back Pain and Urinary Incontinence

by Jess Li, Physiotherapist, KWH

Urinary incontinence (UI) is a common female dysfunction, affecting women in all ages. The prevalence of UI in Hong Kong is reported to be 33.8% (Pang 2005). Low back pain (LBP) has been defined as a condition of pain localized to the lumbar spine with or without radiation to the hip or leg (Waddell, 1996), which can be the result of several concurrent conditions whose etiology is unknown. The prevalence of LBP in Hong Kong is reported to be 21% (Lau et. al. 1995). Experienced physiotherapists and experts on LBP have since long observed and discussed the empirical association between LBP and UI, while also observing the benefits of the muscular stabilization treatment on both LBP and UI (Richardson et al, 1999).

Hypothetically, there might be a relationship between LBP and UI but research regarding the relationship between UI and LBP is few. In a Sweden study, 78% of women with LBP reported urinary incontinence (Eliasson et al, 2008). To our knowledge there are no studies describing the occurrence of UI in women with LBP in Chinese population.

The objectives of this study are therefore to describe the occurrence of UI in women visiting physiotherapy clinics and to investigate the association between urinary incontinence and LBP. Low back pain and urinary incontinence questionnaire were distributed in Kwong Wah Hospital Out-patient Department.

Recent urinary incontinence symptoms defined as:

- ⇒ Frequent voiding
- ⇒ Stress urinary incontinence
- ⇒ Urge incontinence

Low back pain symptoms defined as

- ⇒ Central back pain
- ⇒ Sciatica



The inclusion criteria were female, seeking physiotherapy for musculoskeletal problem, not pregnant, no previous spinal, pelvic floor or abdominal surgery.

Demographics for women with LBP

A total of 200 women answered the questionnaire.

Their mean age was 54 (range 26-85) years. The majority of the women with LBP reported recurrent LBP (87%). Sixteen percent (n 33) were nulliparous and 84% (n 167) were parous, whereas 55% (n 110) had delivered one to two. BMI averaged 24 (range 18-40) kg/m². Fifty-five percent were overweight. Frequency of defecation per week, level of straining effort, and straining time will be assessed on the first physiotherapy visit, and the final physiotherapy session. The prevalence of UI and LBP showed to be 78% within the 200 women visiting the department for treatment, and the statistical analysis showed that the condition LBP increased the risk for UI almost seven times ($p < 0.005$).

In this study including 200 women visiting physiotherapy clinics for treatment, and the statistical analysis showed that the condition LBP did not increase the risk for UI for parous women. There are diverging opinions on childbirth as a risk factor for UI. Most studies report that UI is most likely to occur in parous rather than nulliparous women (Jolleys, 1988) with an increased risk for every vaginal delivery (Jolleys, 1988). However, Thomas et al. (1980) found UI to be most common in parous women, but not until after four or more children, while in a recent Swedish study, Uustal Fornell et al. (2004) found an increased risk after more than two children. Most of the women in this study had delivered one or two children, and statistical analysis did not show that childbirth is a risk factor for UI.

However, age was found to be a risk factor for UI in this study. The LBP group of age >45 was found to be associated with higher chance (OR 7.5) of getting urinary incontinence to those patients of age <45 (OR 4.2) in this study ($p < 0.005$).

Overweight is reported to be a risk factor for UI (Dwyer et al., 1988; Hunskar et al., 2000) Frequency of defecation per week, level of straining effort, and straining time will be assessed on the first physiotherapy visit, and the final physiotherapy session., but overweight did not influence the prevalence of UI in this study.

There is an unclear association mechanism between LBP and urinary incontinence. Some studies showed that there is close relationship between pelvic floor muscles and abdominal muscles. EMG of PFM increases with contraction of abdominal muscles (Ruth R. et al. 2001). There is ineffective PFM contraction when abdominal muscle relaxes (P. Neumann and V. Gill 2002). Women with disorders of continence and respiration have a significantly higher prevalence of back pain. Postural function of diaphragm, abdominal and pelvic floor muscles is reduced by incontinence (Smith et al. 2006).

Conclusion

Prevalence of UI was 78% in women with recurrent LBP (93 out of 119 patients with LBP has UI). Women with low back pain is associated with 6.77 times higher chance of getting urinary incontinence to those without low back pain.

Clinical Implication

- ⇒ Rehabilitation of Urinary incontinence patients (frequent voiding, stress urinary incontinence, urge incontinence) may require abdominal muscles strengthening in addition to pelvic floor muscle training.
- ⇒ Co-existing LBP and urinary problems should be addressed and appropriate treatment should be given.
- ⇒ Treating patients with LBP should be aware of possible leakage problems within this patient group.

This study is a first attempt in Chinese population to describe whether women with LBP suffer from UI more or less than ordinary women, or the same. In the future the findings will be followed up in a larger epidemiological population study.

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Congratulations

陳秀娟 (理遺科顧問護師)

基督教聯合醫院綜合理遺中心(Integrated Continence Care Centre)已于十月十四日正式開幕。中心位于聯合醫院 S 座四樓，佔地約 300 平方呎，是本港首創的綜合理遺中心，此中心是有賴世界傳道會那打素基金的慷慨捐贈而成立的。

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理遺科是指專門處理遺忘了的大小二便的專科，如大小便失禁、排尿有困難、尿頻、尿床或便秘等。理遺中心的宗旨是建立一個資料庫，匯集各類有關理遺的資料，提供參考或諮詢。

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設於綜合理遺中心內，常備有關理遺科單張、書刊、影帶、影碟提供有需要人士索閱。健康教育活動，定期舉辦不同健康講座及常識分享，向市民推廣有關理遺健康訊息。如有提問，填寫提問紙，稍後有理遺科護士解答之。

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