

นิพนธ์ต้นฉบับ

ผลของการขยายท่อปัสสาวะในผู้หญิงวัยกลางคน ที่มีกลุ่มอาการทางเดินปัสสาวะส่วนล่าง

เปรมพงษ์ พิมพ์พิไล, ภควัฒน์ ระมาตร์, สุชาย สุนทรภา, ไชยรงค์ นวลยง,
สุนัย ลีวันแสงทอง, สิทธิพร ศรีนวลนัด, ธวัชชัย ทวีมันคงทรัพย์, บรรณสิทธิ์ ไชยประสิทธิ์,
ธีระพล อมรเวชสุกิจ, ศิรส จิตประไพ, กิตติพงษ์ พิณธุโสภณ, พิชัย ศุจิจันทร์ตัน,
เอกรินทร์ โชติกวาณิชย์, นพเก้า ชนะภัย

สาขาวิชาศัลยศาสตร์ยูโรวิทยา ภาควิชาศัลยศาสตร์ คณะแพทยศาสตร์ศิริราชพยาบาล มหาวิทยาลัยมหิดล กรุงเทพฯ

บทคัดย่อ

วัตถุประสงค์: เพื่อประเมินผลของการขยายท่อปัสสาวะในผู้หญิงอายุมากกว่า 40 ปีและอาการทางเดินปัสสาวะส่วนล่าง
ผู้ป่วยและวิธีการศึกษา: ผู้หญิง 45 คน ที่มีอาการทางเดินปัสสาวะส่วนล่างได้รับการรักษาด้วยวิธีขยายท่อปัสสาวะ โดยทุกราย
ได้รับการประเมินอาการและความแรงของการปัสสาวะ (uroflowmetry) ก่อนและหลังขยายท่อปัสสาวะที่ 1 และ 3 เดือน
ผลการศึกษา: ร้อยละ 88 มีอาการทางเดินปัสสาวะส่วนล่างดีขึ้นที่ 1 เดือนหลังขยายท่อปัสสาวะ โดยร้อยละ 80 ยังคงมีอาการ
ทางเดินปัสสาวะส่วนล่างดีที่ 3 เดือนหลังขยายท่อปัสสาวะ แต่ไม่พบการเปลี่ยนแปลงความแรงของการปัสสาวะ (uroflowmetry)
สรุป: การขยายท่อปัสสาวะสามารถช่วยให้อาการทางเดินปัสสาวะส่วนล่างในผู้หญิงดีขึ้นได้ในระยะสั้น (ที่ 1 และ 3 เดือน) ส่วน
ผลในระยะยาวยังต้องศึกษาเพิ่มเติมต่อไป

คำสำคัญ: การขยายท่อปัสสาวะ กลุ่มอาการทางเดินปัสสาวะส่วนล่าง ผู้หญิง

Original article

Effect of Urethral Dilation in Women with Lower Urinary Tract Symptoms

Prempong Phimphilai, Patkawatt Ramart, Suchai Soontrapa, Chaiyong Nualyong, Sunai Leewansangtong, Sittiporn Srinualnad, Tawatchai Taweemonkongsap, Banasithi Chaiyaprasithi, Teerapon Amornvesukit, Siros Jitpraphai, Kittipong Phinthusophon, Phichaya Sujijantararat, Ekkarin Chotikavanich, Noppagao Chanapai

Division of Urology, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Abstract

Objective: To evaluate the effect of urethral dilation on lower urinary tract symptoms in women.

Material and Methods: Forty-five women with non-neurogenic lower urinary tract symptoms (LUTS) without genital prolapsed underwent urethral dilation. Clinical and uroflowmetry were followed up and recorded at 1 and 3 months. Any significant change in clinical and uroflowmetry were evaluated.

Results: Within 1 month of dilation, 88% (40/45) of the women reported a clinical improvement. Clinical improvement in LUTS was associated with a lower IPSS score ($p < 0.05$). At 3 months, 80% (36/45) of the women also reported a clinical improvement. No significant change in uroflowmetry before and after dilation was reported.

Conclusion: The study demonstrated that urethral dilation was effective in aged women with LUTS in the short term (1 and 3 months) However, other studies are required in order to determine the long-term effects

Keywords: urethral dilation, lower urinary tract symptoms, women

Introduction

Lower urinary tract symptoms (LUTS) is one of the most common presentations of aged women in the urology department. The reported prevalence is between 2% and 39% and increases with age.¹⁻³ This condition is poorly understood, due to the lack of a standard definition and guidelines for treatment.

According to ICS 2002, lower urinary tract symptoms are composed of 3 symptom groups, including storage, voiding, and post micturition symptoms¹. Pathological causes are bladder outlet obstruction, space occupying lesion, external compression, poor bladder compliance, and urine irritation. Therefore, treatment options usually depend upon the causes.

In our institute, most women who complain of lower urinary tract symptoms, without neurogenic dysfunction, have uroflowmetry and urethral dilation performed on them. This procedure has been used for many years, but the evidence of treatment efficacy is still lacking.

The aim of this study was to evaluate whether urethral dilation leads to a change in clinical LUTS and uroflowmetry in women

Material and Methods

Forty five women (age > 35 years) with LUTS by clinical were enrolled in this study.

Exclusion criteria were neurological deficiency, urinary tract infection, vesical calculi, history of pelvic radiation and anti-incontinence surgery, pregnancy, genital prolapse, and intake of drug affecting voiding.

All the patients were informed of the study's purpose and exact procedures. After which, they granted their informed consent. All the patients underwent assessments, including detailed urological history, physical examination, urinalysis, international prostate symptom score (IPSS), uroflowmetry, and

urethral calibration. Then all the patients underwent urethral dilation with Hegar dilator up to No. 12 (36 Fr). All the patients received prophylaxis oral ofloxacin (cefdinir if allergic to fluoroquinolone) for 3 days.

All the patients were assessed at 1 and 3 months after urethral dilation including urinalysis, uroflowmetry, IPSS, and complication of urethral dilation.

Hsiao and colleagues demonstrated that IPSS could be used effectively to evaluate for female lower urinary tract dysfunction⁵. Therefore, we decided to use this questionnaire to represent storage and voiding symptoms rather than other questionnaires.

In uroflowmetry, we recorded the patient's uroflowmetry before dilation and at 1 and 3 months after dilation. This study used the rotating disc method. We performed uroflowmetry when the patient had a desire to void. We considered adequate uroflowmetry if the voiding volume was more than 150 ml. If the voiding volume was less than 150 ml, we considered the test inadequate and the patient had to perform the test again. After the test was deemed adequate, we used the maximum flow rate to determine whether the patient's symptom was better or worse.

The primary outcome was the change of IPSS following urethral dilation. Secondary outcome was the change in uroflowmetry following urethral dilation.

Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS). Patient demographics and clinical variables were summarized by descriptive statistics: means and standard deviation (SD) or median for continuous variables; frequencies and percentages for categorical variables. IPSS and uroflowmetry were compared at each visit using Friedman's test with multiple comparisons by Bonferroni's method. P-value of less than 0.05 was regarded as statistically significant.

Results

Parameter	Baseline	At 1 month	At 3 month	P-value compare with 1 month	P- value compare with 3 month
Mean IPSS	19.33	11.36	10.62	<0.001	<0.001
Mean storage symptom score	8.96	5.11	4.71	<0.001	<0.001
Mean voiding and post voiding symptom score	10.49	6.24	5.91	<0.001	<0.001
Maximum flow rate	16.21	17.750	18.21	0.246	0.347

All the patients in this study had to complete 3 months of follow-ups. The mean patient age was 61.66 (SD = 11.64) years. All complained of LUTS at the initial assessment. The mean IPSS before urethral dilation was 19.33 with 6% (3 of 45) of patients having mild symptoms (IPSS 1-7), 51% (23 of 45) moderate symptoms (IPSS 8-19), and 42% (19 of 45) severe symptoms (IPSS 20-35).

At the 1 month assessment, mean IPSS was 11.36. Sixty-two percent of the patients (23 of 45) had their symptom improve markedly (IPSS decrease > 4). Twenty-four percent (11 of 45) had their symptom improve (IPSS decrease 1-4). Eight percent (4 of 45) had no change in their symptom (IPSS no change). Four percent (2 of 45) had their symptom worsen (IPSS increase). The mean IPSS at 1 month after dilation decreased significantly ($p < 0.05$) when compared with before dilation.

At the 3 month assessment, mean IPSS was 10.62. Seventy-three percent (33 of 45) had their symptom improve markedly (IPSS decrease > 4). Eight percent (4 of 45) had their symptom improve (IPSS decrease 1-4). Six percent (3 of 45) had no change in their symptom. Ten percent (5 of 45) had their symptom worsen. The mean IPSS at 3 months after dilation decreased significantly ($p < 0.05$) when compared with before urethral dilation.

Concerning complications, 10 of 45 patients complained of pain after urethral dilation but the

pain could be relieved by oral medication. Eight of 45 patients complained of mild hematuria after urethral dilation, but they did not require any treatment. No other major complications were found in all the patients.

Discussion

Female lower urinary tract symptoms are a problem of which most urologists have a limited understanding. The causes can be categorized in two groups: bladder dysfunction or outlet obstruction. History, physical examination, and basic investigations can help urologists when making a diagnosis in some cases. Cystoscopy may be considered as the next investigation for this problem.

There are many options when treating women with LUTS. The first option is conservative management: weight loss, cessation of smoking, and dietary factors (decreased use of caffeine, decreased fluid intake, decreased alcohol intake, changes in diet). Lifestyle interventions may include pelvic floor muscle training.

If conservative treatment fails, one of the most common options used by urologists is pharmacotherapy. According to the ICI 2008⁶, many drugs have good recommendations for treating women with LUTS, including antimuscarinic (A), antidepressant (C), alpha blocker (C), and beta adrenoreceptor blocker (C). Oral antimuscarinics are the mainstay

of treatment. Zinner N and colleagues found that Trosipium significantly decreases LUTS⁷. But the problem is the undesirable side effects of these drugs. The most common reported side effects are dry mouth, constipation, headaches, and blurred vision. α -Adrenoreceptor blockade with alfuzosin⁸, terazosin⁹, and tamsulosin¹⁰ have also been shown to lead to improvements in bladder emptying, quality of life, and lower urinary tract symptoms in women with LUTS.

An injection of botulinum toxin to the bladder wall is one of the new treatments for women with LUTS. ICI 2008 justifies this treatment with a grade B recommendation. David E Rapp and colleagues found that 60% of patients improve with this treatment option¹¹.

Other pharmacologic options for women with LUTS mentioned by ICI 2008 were COX-inhibitor (recommendation C), Baclofen (recommendation C), Estrogen (recommendation C), and Desmopressin (recommendation A) for treatment of nocturia.

Urethral dilation for a female patient who has lower urinary tract symptoms is performed in some institutes as a female lower urinary tract treatment. In a study from Basu M and colleagues, it was demonstrated that 31% and 19% of patients reported a subjective improvement at 6 weeks and 6 months after dilation, respectively¹². And a study from Chen C and colleagues demonstrated that eight weeks after treatment, 31.1% of women who underwent urethral calibration were responsive to the treatment versus 9.3% of the control group; and, that 51.1% of women in the treatment group showed at least a partial response versus 20.9% of the control group¹³.

Our results showed that 88% of the patients had a subjective improvement at 1 month after dilation, and 80% of the patients had a subjective improvement at 3 months. But our study failed to show an improvement in uroflowmetry after urethral dilation. All previous studies and our study show that urethral dilation has a positive effect on women with LUTS. But the problem is that urethral dilation

may produce only a short-term improvement due to the mechanical stretching of the urethral caliber, as shown in a study by Basu M and colleagues, which found that only 19% of patients maintained a subjective improvement at 6 months after dilation compared with 31% at 6 weeks¹². Repeat dilation may improve effectiveness and may also be acceptable to patients. It is known that some patients with antimuscarinic drug will discontinue medication due to the side effects, leaving them with few options to control their symptoms. Urethral dilation would give them an alternative option for treatment.

Conclusion

Urethral dilation is an effective treatment option for women with LUTS, in the short-term. However, other studies are required in order to determine the long-term effects. A further challenge is to identify whether certain patient groups are more likely to benefit from urethral dilation than others.

References

1. Dwyer P, Desmedt E. Impaired bladder emptying in women. *Aust N Z J Obstet Gynaecol* 1994; 34: 73-8.
2. Irwin D, Milsom I, Hunskar S, et al. Population based survey of urinary incontinence, overactive bladder, and other lower urinary tract symptoms in five countries: results of the EPIC study. *Eur Urol* 2006; 50:1306-14.
3. Haylen B, Krishnan S, Schulz S, et al. Has the true prevalence of voiding difficulty in urogynaecology patients been underestimated? *Int Urogynecol J Pelvic Floor Dysfunc* 2007; 18: 53-6.
4. Abrams P, Cardozo L, Fall M, et al. The standardisation of terminology of lower urinary tract function: report from the Standardisation Sub-committee of the International Continence Society. *Neurourol Urodyn* 2002; 21: 167-78.

5. Hsaio S, Lin H, Kuo H, et al. International prostate symptom score for accessing lower urinary tract dysfunction in women. *Int Urogynecol J* (2013)24: 263-7.
6. Andersson KE, Chapple CR, Cardozo L, et al. Pharmacologic treatment of urinary incontinence. In: Abrams P, Cardozo L, Khoury S, Wein A, editors. *Incontinence: 4th International Consultation on Incontinence*. Paris: Health Publications; 2009: p. 631-700.
7. Zinner N, Gittelman M, Harris R, et al. Trosipium chloride improves overactive bladder symptom: a multicenter phase III trial. *The J of Urology* 2004; 171: 2311-5.
8. Athanasopoulos A, Gyftopoulos K, Giannitsas K, et al. Effect of alfuzosin on female primary bladder neck obstruction. *Int Urogynecol J Pelvic Floor Dysfunct* 2009; 20: 217-22.
9. Kessler T, Studer U, Burkhard F. The effect of terazosin on functional bladder outlet obstruction in women: a pilot study. *J Urol* 2006; 176: 1487-92.
10. Pischedda A, Pirozzi F, Madenia M, et al. Use of alpha 1-blockers in female functional bladder outlet obstruction. *Urol Int* 2005; 74: 256-61.
11. Rapp DE, Lucioni A, Katz EE, et al. Use of botulinum-A toxin for the treatment of refractory overactive bladder symptoms: An initial experience. *Urology* 2004; 63: 1071-5.
12. Basu M, Duckett J. The effect of urethral dilatation on pressure flow studies in women with voiding dysfunction and overactive bladder. *Int Urogynecol J* 2009; 20: 1073-7.
13. Chen CH, Sato RL, Matsuura GHK, et al. Treatment of overactive bladder syndrome with urethral calibration in women. *Hawaii J Med Public Health* 2013; 72: 350-4.