URODYNAMIC FINDINGS IN FEMALE PATIENTS REPORTING WITH LOWER URINARY TRACT SYMPTOMS

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Objective: The study has been undertaken to determine the reproducibility of lower urinary tract symptoms in female patients after urodynamic investigations. **Design**: A Descriptive study with retrospective analysis of data. **Setting**: Combined Military Hospital Rawalpindi and Armed Forces Institute of Urology, Rawalpindi. **Methods**: Fifty consecutive women with a primary history of urinary incontinence were interviewed on a standard urinary incontinence questionnaire. They underwent structured clinical pelvic examination, along with cough stress test. Post void residual urine was measured. This was followed by a urine routine examination to exclude any urinary infection. Later these patients underwent a combination of urodynamic tests to predict their final diagnosis. The tests performed were filling cystometry and leak point pressures. **Results**: The clinical diagnosis was found to have a variable reproducibility on urodynamic investigations. Clinical stress incontinence translated as genuine stress incontinence in 61.5% of the cases. Patients with isolated symptoms of stress incontinence had an incidence of detrusor instability up to 33.3%. For the symptoms of urgency and urge incontinence, the diagnosis was reproducible in up to 50% of the cases. In cases of mixed symptoms, 20% patients were found to have stress incontinence and 33.3% cases were found to have an unstable bladder, whereas in 46.6% of the cases no objective abnormality was found on urodynamic investigations. **Conclusion**: Urodynamic investigations should be performed in female patients with lower urinary tract symptoms, especially if irreversible procedure, e.g., surgery is being contemplated.

Keywords: Urinary incontinence, stress incontinence, cystometry, leak point pressure, urinary tract

INTRODUCTION

Currently there is a considerable debate over what constitutes the basic of evaluation of a patient reporting with lower urinary tract symptoms and the extent of evaluation required to distinguish reliably genuine stress incontinence from detrusor over activity, before any intervention is contemplated in such patients. Any basic evaluation of the incontinent patient should be able to reliably distinguish between different types of incontinence, i.e., stress incontinence, detrusor instability and mixed incontinence, as these are the commonest types of female urinary incontinence. The evaluation should allow the physician to determine the appropriate therapy. There is a conflicting expert opinion regarding which if any test is to be performed before initiating therapy for incontinent female patient. This understanding is important as these investigations are not widely available, are costly and have a low but defined associated risk of infection, being invasive in nature.[1]

PATIENTS AND METHODS

Fifty consecutive women without any significant pelvic organs prolapse, who were having a history of primary urinary incontinence, were interviewed on a standard urinary incontinence questionnaire. These patients underwent structured clinical pelvic examination along with cough test. Post void urine and routine urine examination was performed to rule out any urinary infection. All the patients having urinary tract infection were excluded from the study till they were treated and their urine was infection free. On basis of history and clinical examination, the patients were divided into three groups i.e. stress incontinence only (30%) urge incontinence only (40%) and mixed stress and urge symptoms (30%). All patients were then subjected to urodynamic testing that included filling cystometry and leak point pressure. On the basis of these tests results final diagnosis was predicted.

RESULTS

The clinical diagnosis was found to have a variable reproducibility on urodynamic investigations. Clinical stress incontinence translated as genuine stress incontinence in 61.5% of the cases. Patients with isolated symptoms of stress incontinence had an incidence of detrusor instability up to 33.3%. For the symptoms of urgency and urge incontinence, the diagnosis was reproducible in up to 50% of the cases. Ten percent of these patients actually turned out to be cases of stress incontinence, whereas 53.3% cases were normal on urodynamic investigations. In cases of mixed symptoms 53.3% patients could be categorized into either cases of genuine stress incontinence or detrusor instability, thereby facilitating selection of correct management options, whereas other cases were normal urodynamically. None of the patients of mixed symptoms had stress incontinence and detrusor instability simultaneously when tested with urodynamics (Table-1).

Table-1: Urodynamic outcome

Clinical diagnosis	Urodynamic outcome		
	Stress incontinence	Detrusor instability	No abnormality
Stress incontinence (n=15)	8	5	2
Urge incontinence (n=20)	2	10	8
Mixed symptoms (n=15)	3	5	7

DISCUSSION

The Agency for Health Care Policy and Research (AHCRP) first published guideline for evaluation and management of urinary incontinence in 1992. (Updated in 1996).[2] It has been recommended by a panel of experts that a basic evaluation should include a thorough history (including a voiding diary), physical examination, post void residual and urine routine analysis.[3]

It was found that when only these evaluation criteria are applied in the evaluation of a female incontinent patient approximately 30% of the subjects with stress incontinence are diagnosed incorrectly or incompletely.[4]

Whereas the history plays an important role in identifying the reversible causes of female incontinence and assessing its impact on the quality of their lives, it has a poor ability to differentiate between different causes of incontinence. It should not therefore be relied upon alone to make a diagnosis as without an objective investigation, the clinical impression can lead to ineffective or needless surgery.[5] These guidelines are therefore just an initial step for conservative treatment. If more invasive treatment is being considered, further tests are to be taken in account.

With increasing awareness of the patients and the practitioners about the impact of urinary incontinence and the treatment options, many commercial multi-channel urodynamic systems are increasingly available. By recording simultaneous pressures within the bladder and the abdomen, increases in detrusor pressure can be discriminated from increase in intra-abdominal pressure. Intra-abdominal pressure recorded indirectly by placement of a catheter within the vagina or rectum. Vaginal, rectal and intravesical pressures have been shown to have a high correlation during abdominal straining.[6,7] This arrangement of catheters is also often used to evaluate voiding function. In neurologically intact women simultaneous EMG of urethral striated musculature is not indicated.[8]

Given the artificial atmosphere of the urodynamic laboratory, some authors have proposed that ambulatory urodynamic cystometry may provide a more natural and accurate method to evaluate daily bladder function. However, the major limitations of ambulatory monitoring include non standardized techniques and the fact that it is expensive and labour intensive.[9] The reproducibility studies which are carried out have found that results depend upon the instructions given to the patient while the cystometry is being performed.[10] A conscious inhibition of urgency during filling decreases the detection of involuntary detrusor contraction in 17% of patients compared with repeat testing without inhibition.[11] Although valsalva leak point pressure have been shown to have reasonable reproducibility at a given vesical volume, diameter of the catheter and whether it is placed in the bladder or the vagina affect both the valsalva and cough leak point pressures.[12,13]

It is important to assess for cystitis by culture or urine analysis before performing urodynamic testing to avoid infections morbidity and an erroneous diagnosis. Women with detrusor instability may have increase rate of bacteriuria.[14] Although, it has been suggested that urodynamics are unnecessary in most women presenting with urinary incontinence in general practice, our results match with several other studies that no symptom has a high enough sensitivity and specificity to replace urodynamic testing.[15] Observed urine loss with cough during multi-channel urodynamics was the best examination for diagnosing genuine stress incontinence.[16] Urodynamic assessment provides useful information in women with lower urinary tract symptoms, which help in planning management.[17]

As symptoms alone are not sufficient to differentiate between different types of urinary incontinence[18], urodynamic tests are essential in the diagnosis and management of female urinary incontinence especially if surgery is being contemplated [19]. Although our results differ from another such study quoted[20], in which no symptom reached a reproducibility of 10%, we still think that significant proportion of patients can be aided in treatment selection by adding urodynamics investigations to clinical assessment, especially if surgery is being contemplated.

CONCLUSION

Clinical urodynamic testing aids in selection of specific treatment and identify women who are at increased risk for complication or failure. As with any clinical test, the clinician must interpret urodynamic results within the perspective of patient complaints and in light of their clinical experience. Use of both the urinary questionnaire and urodynamic study allows us to identify the type of bladder dysfunction[21] and select the patients who would benefit the most from medical or surgical therapy.

REFERENCES

1. Lemack GE. Urodynamic assessment of patients with stress incontinence: how effective are urethral pressure profilometry and abdominal leak point pressures at case selection and predicting outcomes? Curr Opin Urol 2004;14(6):307–11.
2. Fantl JA, Newman DK, Colling J, DeLancey JOL, Keeys C, Loughery R, *et al*. Urinary incontinence in adults: acute and chronic management. Clinical practice guideline, No. 2, 1996 Update. Rockville, MD: US Department of Health and Human Services. Public Health Service, Agency for Health Care Policy and Research. AHCPR publication No.96-0682 March 1996.
3. Handa VL, Jensen JK,Ostergard DR. Federal guideline for management of urinary incontinence in United States: Which patient should undergo urodynamic testing. Int Urogynecol J Pelvic Floor Dysfunct 2001;12:31–7.
4. Moolgoaker AS, Ardran GM, Smith JC. The diagnosis and management of urinary incontinence in the female. J Obstet Gynaecol Br Commw 1972;79:481–97.
5. Richardson DA. Use of Vaginal pressure measurements in urodynamic testing. Obstet Gynecol 1985;66:581–4.
6. AL-Taher H, Sutherst JR, Richmond DH. Vaginal pressure as an index of intra abdominal pressure during urodynamic evaluation. Br J Urol 1987;59:529–32.
7. Weld KJ, Dmochauski RR. Association of injury and bladder behaviour in patients with post traumatic spinal cord injury. Urology 2000;55:490–4.
8. Brown K, Hilton P. Ambulatory monitoring. Int Urologynaecol J 1997;8:369–76.
9. Homma Y, Kondo Y, Takahashi S. Reproducibility of cystometry in overactive detrusor. Eur Urol 2000;38:681–5.
10. Blairas JG, GroutzA, Verhaaren M. Does the method of cystometrey affect the incidence of involuntary detrusor contraction? A prospective randomized urodynamic study. Neurourol Urodyn 2001;20:141–5.
11. Miklos Jr, Sze EH M, Karram MM. A critical appraisal of methods of measuring leak-point pressure in women with stress incontinence. Obstet Gynecol 1995;86:349–52.
12. 11. Bump RC, Elser DM, Theofrastous JP. Valsalva leak point pressures in women with genuine stress incontinence: reproducibility, effect of catheter caliber and correlations with other measures of urethral resistance. Am J Obstet Gynecol 1995;173:551–7.
13. Moore KH, Simonsa A, Mukerjee C. The relative incidence of detrusor instability and bacterial cystitis detected on the urodynamic test day. Br J Urol 2000;87:786–92.
14. Khan MS, Chaliha C, Leskova L, Khullar V. The relationship between urinary symptoms questionnaire and urodynamic diagnosis: an analysis of two methods of questionnaire administration. BJOG 2004;111:468–74.
15. Swift SE, Ostrergard DR, Evaluation o0f current Urodynamic testing methods in the diagnosis of genuine stress incontinence. Obstet Gynecol 1995;86:85–91.
16. Clarke B. The role of Urodynamic assessment in the diagnosis of lower urinary tract disorders. Int Urogynecol J Pelvic Floor Dysfunct 1997;8(4):196–9.
17. Roongruangslip U, Lertisithchai P, Kochakarn W, Ratana-Olarn K. Correlation between symptoms and urodynamic findings in Thai female patients with urinary incontinence. Med Assoc Thai 2005;88:364–70.
18. Fukui J, Nakama M. The role of urodynamic study in female patients with urinary incontinence. Hinyokika Kiyo 1992;38:1369–72.
19. Lagro-Janssen AL, Debruyne FM, Vanweel C. Value of patient's case history in diagnosing urinary incontinence in general practice. Br J Urol 1991;67:569–72.
20. Giner Santamaria C, Galiano Baena JF, Caballero Romeu JP, Leivar Tamayo A, Belvis Esclapes V, Lobato Encinas JJ. Urodynamic findings in patients older than 65 years: experience in the department 19 of the health care area of Valencia (HCAV). Arch Esp Urol 2007;60:656–63.
21. Barrero R, Mir P, Cavuela A, Campoy P, Pena JM, Alberca R. Urinary symptoms and urodynamic findings in Parkinson's disease. Neurolgia 2007;22(2):93–8.

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