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Original Research Article

A cross sectional study to assess the need of urodynamic studies in lower urinary tract patients attending an urogynaecology clinic

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ABSTRACT

Background: Urodynamic studies are gold standard to objectively diagnose lower urinary tract symptoms and dysfunction. **Aims and Objectives:** To correlate clinical symptoms of lower urinary tract with urodynamic study to know whether urodynamics is really required routinely in patients with lower urinary tract symptoms (LUTS).

Methods: The study was conducted at Century hospital Hyderabad and Dr Lalitha's urogynaecology clinic Hyderabad, India during 15 days; from 2 September 2015 till 16 September 2015 with 48 patients. All cases coming to urogynaecology clinic who were taken up for urodynamic study were included. Statistical analysis was done by student's t test with $p < 0.05$ considered statistically significant.

Results: Total patients with urinary frequency were 13 out of which 7 (53.84%) had cystometric capacity of less than 200ml. Out of 16 patients with urgency and urge incontinence 10 (62.50%) had high detrusor pressure during voiding. 50% patients had max cystometric capacity < 200 ml. Out of 7 patients with SUI (stress urinary incontinence) only one had genuine stress incontinence; all others had mixed incontinence with either raised EMG or raised Pdet. Out of 15 patients with complaints of voiding dysfunction 14 (93.33%) had low flow rate that is $Q_{max} < 15$ ml/sec. Out of 15 patients 2 had features of DSD (detrusor sphincter dyssynergia). Total 6 patients had raised EMG as cause for difficult voiding.

Conclusions: Detrusor sphincter dyssynergia as a cause of dysfunctional voiding is diagnosed using urodynamic study with EMG. Urodynamic study is important and useful tool to evaluate female lower urinary tract symptoms and unnecessary delay in doing a detailed urodynamics should be avoided.

Keywords: Detrusor sphincter dyssynergia, SUI, Urogynaecology, Urodynamic studies

INTRODUCTION

Urodynamic studies are gold standard to objectively diagnose lower urinary tract symptoms and dysfunction.^{1,2} Clinicians still hesitate to use it widely due to its invasive nature. But there is lot of difference between patient symptom complex and urodynamic findings which alter the course of management. This is the reason we have take-up the study in Indian city

female population to know the significance of routinely doing urodynamic testing.

Aims and objectives

The present study was contemplated with the aim to correlate clinical symptoms of lower urinary tract with urodynamic study to know whether urodynamics is really

required routinely in patients with lower urinary tract symptoms (LUTS).

METHODS

The study was conducted at Century hospital Hyderabad and Dr Lalitha’s urogynaecology clinic Hyderabad, India during 15 days; from 2 September 2015 till 16 September 2015 with 48 patients.

Inclusion criteria

All cases coming to urogynaecology clinic who were taken up for urodynamic study were included.

Statistical analysis: Student’s t test with p<0.05 considered statistically significant.

Study process

History-a detailed history of clinical symptoms of LUTS taken in terms of storage symptoms (frequency, urgency, incontinence urge and stress) and voiding symptoms (hesitancy, thin stream, abdominal straining).

Urodynamic study- it was done by standardized method with normal values taken as follows:³

1. Post Void Residue (PVR) - <50ml
2. First desire to void: 150-200ml
3. Cystometric capacity >400ml
4. No detrusor pressure rise on filling.
5. Low filling rate kept between 40 – 60ml/sec
6. Abdominal leak point pressure tested at 200-250ml.
7. Cough leak recorded.
8. Normal detrusor pressure during voiding taken as Pdet <40cmH2O.
9. Maximum flow rate (Qmax) for voided volume of more than 150ml to be >15ml/sec.

RESULTS

Table 1: Correlation of urinary frequency with total cystometric capacity.

Cystometric capacity	Number of patients with urinary frequency
<200	7
>200	6
Total	13

Table 2: Correlation of urgency/urge incontinence with maximum cystometric capacity and detrusor pressure during voiding and unstable detrusor activity.

Cystometric capacity	Number of patients	Pdet <50	Pdet >50	Qmax >15ml/sec	Qmax <15ml/sec	EMG normal	EMG raised
<200	8	4	4	6	2	6	2
>200	8	4	4	6	2	7	1
Total	16						

Table 3: Correlation of stress urinary incontinence with maximum cystometric capacity, demonstration of cough leak and voiding parameters.

Number of patients	Cysto capacity <200	Cysto capacity >200	Pdet<50	Pdet>50	Qmax>15	Qmax<15	EMG Normal	EMGr aised
1	6	3	4	5	2	5	2	

Table 4: Correlation of voiding symptoms and urodynamic parameters.

	Qmax <15	Qmax >15	Pdet<50	Pdet>50	EMG normal	EMG raised	PVR<50	PVR>50
Number of patients	11	4	6	9	9	6	11	4

Total numbers of patients with symptoms of urges and urge incontinence - 16 (Table 2).

Total patients with complaints of SUI were 7 (Table 3).

Total patients with complaints of thin stream, hesitancy and incomplete voiding were 15 (Table 4).

- Total patients with urinary frequency were 13 out of which 7 (53.84%) had cystometric capacity of less than 200ml.
- Out of 16 patients with urgency and urge incontinence 10 (62.50%) had high detrusor pressure during voiding. 50% patients had max cystometric capacity <200ml.
- Out of 7 patients with SUI only one had genuine stress incontinence; all others had mixed incontinence with either raised EMG or raised Pdet.
- Out of 15 patients with complaints of voiding dysfunction 14 (93.33%) had low flow rate that is $Q_{max} < 15 \text{ml/sec}$
- Out of 15 patients 2 had features of DSD (detrusor sphincter dyssynergia).
- Total 6 patients had raised EMG as cause for difficult voiding.

DISCUSSION

The present study found that the relation between urinary frequency and cystometric capacity is not significant ($p > 0.05$). History of voiding dysfunction has significant correlation with low flow rates on uroflow. 93.33% patients having difficulty in micturition had low flow rates. But only urodynamic studies can appreciably tell the raised urethral sphincter tone as cause of obstruction.

The study by Linda Brubaker and colleague concluded that scores on urinary symptom scales were inadequate predictors of eventual urodynamic diagnosis.⁴

The study by Alessandro et al concluded that the diagnosis of overactive bladder based on urinary symptoms under diagnose the condition of detrusor instability in women with lower urinary tract symptoms.⁵

The study by Castleden et al concluded that there was no correlation between clinical and urodynamic findings.⁶

The study by B. Clark reported that urodynamic assessment provided useful information in women with lower urinary tract disorders, in developing principles of diagnosis and management.⁷

The study by Rizvi M and Chughtai showed that there was poor correlation between clinical and urodynamic study and so the bladder is not a reliable source of identifying urinary symptoms in women.⁸

The stress incontinence symptom had insignificant correlation with urodynamics. Only 14% patients with symptoms of stress incontinence had genuine stress incontinence rest had mixed incontinence which would have been missed without urodynamic assessment.

The study by Weidner AC et al concluded that predictive value of stress symptoms alone was not high enough to serve as the basis for surgical management.⁹ Similar findings were reported by Nazli Amir and colleagues.¹⁰

Our study as well as all the above mentioned studies concluded that urodynamic testing is mandatory in females with lower urinary tract symptoms and treatment based on symptoms alone is not adequate and accurate.

CONCLUSION

Frequency is not always due to low cystometric capacity and may be due to polyuria or detrusor instability and so urodynamic studies are needed. Patients with SUI have voiding dysfunctions which we need to know before surgery. Detrusor sphincter dyssynergia as a cause of dysfunctional voiding cannot be diagnosed unless urodynamic study with EMG is done. Urodynamics is important tool to evaluate female lower urinary tract symptoms and unnecessary delay in doing a detailed urodynamics should be avoided.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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