Urodynamic profile of lower urinary tract symptoms in young men: A testimony of the truth?

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Abstract

Aim: To evaluate the impact of urodynamic study (UDS) in the management of young men presenting with lower urinary tract symptoms (LUTSs).

Materials and Methods: This is a retrospective, observational study of urodynamic findings of 128 patients presented with LUTS at the Department of Urology, Institute of Nephrourology, Bangalore, over a period of 5 years (August 2014 to July 2019). Pre- and post-UDS diagnoses as well as treatment modalities were compared to evaluate the usefulness of UDS.

Results: A total of 110 patients (86%) had abnormal UDS findings. Before UDS, 55 (43%) patients were clinically diagnosed for overactive bladder; after UDS, bladder outlet obstruction (BOO) was seen in 32 (25%) patients and detrusor overactivity in 18 (14.1%). Clinically, BOO was diagnosed in 36 (28.1%) patients; however, urodynamic findings of BOO were seen only in 23 (18%) patients. Pre-UDS, bladder underactivity was suspected in 23 (18%); however, underactive detrusor was noted in 20 (15.6%) patients, and 3 (2.4%) patients were normal on UDS. Post-UDS, antibiotics were not prescribed to anyone. 18 (14%) patients underwent surgery after UDS confirmation of BOO. 67 patients (52.3%) had their clinical diagnosis changed following UDS. Concomitant changes in the management were required for 59 patients (46%).

Conclusion: Etiologies of LUTSs in young men are more varied. Clinical diagnosis and treatment are often empirical and inaccurate. UDS is useful to achieve accurate diagnosis and to guide appropriate treatment. Video urodynamic study should be used to evaluate LUTS in young men.

Keywords: Lower urinary tract symptoms, urodynamic study, UDS

INTRODUCTION

Lower urinary tract symptoms (LUTSs) are common in young men and often create a diagnostic dilemma. The underlying etiology is varied, and these patients are often empirically diagnosed and treated with unsatisfactory results. Researchers have recommended the use of urodynamic study (UDS) to evaluate young men with LUTS to determine a definitive objective explanation. However, even in the current urological practice, many such patients continue to be managed empirically, and the use of UDS for this group is still not widely practiced. We reviewed our institution’s data to evaluate the usefulness of UDS, whether there were changes in diagnosis as well as treatment modalities following UDS.

MATERIALS AND METHODS

- Type of study: Retrospective study
- Source of data: All male patients aged below 40 years

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who presented with LUTSs over a period of 5 years from August 2014 to July 2019, Department of Urology, Institute of Nephrourology, Bengaluru

- Sample size: 128.

From database of 1480 patients who underwent UDS for any cause in the corresponding period, there were a total of 290 young men below the age of 40; however, only 128 patients fulfill the inclusion criteria.

- Exclusion criteria:
  - History of neurological diseases
  - Presence of urethral stricture
  - Acute prostatitis
  - History of urethral/vesical calculus
  - History of Genitourinary Tuberculosis
  - History of lower urinary tract surgery

- All underwent multichannel UDSs which were conducted according to the International Continence Society Standards.

Urodynamic data collected included
1. Presence of involuntary detrusor contraction
2. Bladder compliance
3. Sensation of bladder filling
4. Any leakage
5. Cystometric capacity
6. Detrusor contractility
7. Detrusor pressure at maximum flow
8. Maximum flow rate
9. Volume of postvoid residual urine.

- Patients’ pre- and post-UDS diagnosis and treatment modalities details were retrieved from hospital records and tabulated.

RESULTS

A total of 105 patients (82%) presented with irritative symptoms and obstructive symptoms were seen in 90 (70%) and 9 patients (7%) had refractory urinary retention.

A total of 110 patients (86%) had abnormal UDS findings [Table 1].

Pre- and post-UDS diagnoses as well as treatment are compared as per Tables 1 and 2.

Before UDS, 55 (43%) patients were clinically diagnosed for overactive bladder (OAB); after UDS, bladder outlet obstruction (BOO) was seen in 32 (25%) patients and detrusor overactivity in 18 (14.1%). 5 (3.9%) patients found to have normal study.

Clinically, BOO was diagnosed in 36 (28.1%) patients; however, urodynamic findings of BOO were seen only in 23 (18%), detrusor overactivity seen in 9 (7%), and dysfunctional voiding (DV) in 4 (3.1%) patients.

Pre-UDS, bladder underactivity was suspected in 23 (18%); however, underactive detrusor was noted in 20 (15.6%) patients, and 3 (2.4%) patients were normal on UDS.

Clinical diagnosis was not made in 14 (10.9%) patients; they were simply labeled as LUTS and referred to UDS; out of them, 5 (3.9%) patients had DV and 9 (7%) were normal on UDS.

Empirical treatment on the basis of clinical diagnosis included antibiotics for 24 (19%), α-adrenergic antagonists for 46 (36%), anticholinergics for 46 (36%), and combined α-adrenergic antagonists with anticholinergics for 23 (18%). Catheterization/clean intermittent catheterisation was advised to 23 (18%) patients.

Post-UDS treatment includes α-adrenergic antagonists for 32 (25%), anticholinergics for 18 (14%), and combined α-adrenergic antagonists with anticholinergics for 41 (32%). Antibiotics were not prescribed to anyone. 36 (28%) patients treated with behavioral therapy such as counseling, fluid restrictions, and timed voiding. Catheterization/CISC was continued for 18 (14%) patients. 18 (14%) patients underwent for surgery after UDS confirmation of BOO.

DISCUSSION

The etiologies of LUTS in young men are more varied, so clinical diagnosis based on history and physical examination alone is often not possible. Clinical symptoms do not correlate with final diagnosis.[1-3]

The majority in our series (86%) had abnormal findings. The urodynamic findings were diverse and differed significantly from the pre-UDS diagnosis. In addition, the changes in diagnosis necessitate changes in management.

55 (43%) patients had BOO; a significant proportion of our younger patients had bladder neck obstruction.

The AUA/SUFU Urodynamic Guideline supports the use of video urodynamic study in young men without an obvious anatomic cause of obstruction because it can differentiate between functional causes of obstruction such as primary bladder neck obstruction (PBNO) and DV.[5]

Although the study was conducted using less invasive means, VUDS was performed in 14 (11%) patients; out of them, 11 patients had PBNO and rest 3 diagnosed for DV.
Urodynamic studies in adults:

- Bladder outlet obstruction
- Detrusor underactivity
- Dysfunctional voiding
- Normal

Urodynamic diagnosis (%)
Pre-UDS diagnosis (%)  Post-UDS diagnosis (%)

| Clinical Diagnosis                  | BOO (18) | DV (9) | DU/AD (4) |
|-------------------------------------|----------|--------|-----------|
| Overactive bladder                  | 55 (43)  | 32 (25)| 18 (14.1)|
| Bladder outlet obstruction          | 36 (28.1)| 23 (18)| -     |
| Bladder under activity              | 23 (18)  | -      | 4 (3.1) |
| LUTS                                | 14 (10.9)| -      | 20 (15.6)|
| Total                               | 128      | 55 (43)| 27 (21.1)|

UDS: Urodynamic study, CISC: Clean intermittent self-catheterization

Table 3: Comparison with other studies

| Study          | Number of patients | Age (years) | BOO | DV | DO | DU/AD | Normal |
|----------------|--------------------|-------------|-----|----|----|-------|--------|
| Present study  | 128                | 33.2        | 43  | 7  | 21.1| 15.6  | 13.3   |
| Nitti et al[1] | 85                 | 35.1        | 48  | 14 | 15  | 10    | 13     |
| Toh and Ng[3]  | 50                 | 38.1        | 42  | 2  | 18  | 10    | 28     |
| Wang et al[6]  | 90                 | 37.5        | 47  | 43 | -   | 10    | -      |

BOO: Bladder outlet obstruction, DV: Dysfunctional voiding, DO: Detrusor overactivity, DU/AD: Detrusor underactivity, AD: Acontractile detrusor

Pre-UDS diagnosis for OAB was made for 55 (43%) compared to 27 (21.1%) who were confirmed to have detrusor overactivity on UDS. Thus, it is probable that OAB is not investigated to define its cause.

Detrusor underactivity was seen in 20 (15.6%) patients. Further analysis of this subgroup revealed that 12 (60%) of them were diabetic.

For those with normal UDS, the mainstay of therapy was behavioral therapy with counseling, fluid restriction, timed voiding, and/or pelvic floor exercise.

The clinical symptoms did not correlate with urodynamic findings. Of the 105 patients who complained of irritative symptoms, only 27 (21.1%) had urodynamic evidence of involuntary detrusor contractions. However, not demonstrating detrusor overactivity during UDS does not mean it is not there. It still can be OAB.

Of the 90 patients who complained of obstructive symptoms, only 55 (43%) had urodynamic evidence of BOO. Conversely, among the 55 with urodynamically proven BOO, 18 (14%) did not complain of obstructive symptoms. However, not being symptomatic despite BOO is nothing unusual.

UDS had a significant impact on diagnosis and management. 67 patients (52.3%) had their clinical diagnosis changed following UDS. Concomitant changes in management were required for 59 patients (46%).

We compared our results with other studies on similar patients [Table 3]. All studies noted significant percentage of abnormal UDS findings for young men presenting with LUTS. In majority of studies, the most common diagnosis was BOO followed by detrusor overactivity.

CONCLUSION

Etiologies of LUTSs in young men are more varied. Clinical diagnosis and treatment are often empirical and inaccurate. UDS is useful to achieve accurate diagnosis and to guide appropriate treatment. Video urodynamics should be used to evaluate LUTS in young men.

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Conflicts of interest
There are no conflicts of interest.

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