



URODYNAMIC ANALYSIS OF MEN WITH LOWER URINARY TRACT SYMPTOMS

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ABSTRACT

Introduction- Lower urinary tract symptoms (LUTS) are the urological expressions increase with aging considerably and disturbing the day to day activity. 24–85% of diseased individual presents with urinary incontinence (UI) and is utmost worrying complaint for patients. Other striking urinary signs associated with aging are due to involuntary urinary bladder contractions and increased residual urine volume after micturition. Urinary bladder emptying as well as storage function is a controlled and complex process. So, understanding of these reasons and the progression of aging are vital in the work up of elder men with lower urinary tract system. **Methods-** One hundred men over 50 years age who had a history LUTS were selected in our study sample. To gather comprehensive medical and personal histories, each patient underwent an interview. Based on their primary complaints, the patients were categorized into two subgroups: irritative and obstructive symptom groups. The following tests were carried out: PVR quantification, noninvasive free flow uroflowmetry, urine culture, and urinalysis. **Results-** Most common age group presenting with LUTS was 70-75 years of age. Irritative group mean IPSS score was 24.5 while obstructive group mean IPSS was 21.2. Mean bladder capacity of irritative LUTS group was 318 ml while obstructive group was 374 ml. The mean p det Qmax assessment for the irritative group is 31.9 cm H₂O, while for the obstructive group, it is 30.1 cm H₂O. 42 patients in all displayed BOO. Of these 19 patients are classified as members of the irritative LUTS group and 23 patients as members of the obstructive group.

KEYWORDS :

INTRODUCTION

In our routine practice of urology getting more aged patient because longevity of persons got increased. So clinicians are getting numerous male patients in their clinics, who seek treatment for ageing associated urinary issues. Issue of lower urinary tract related diseases likewise increase as the age progresses. Diseased person needs appropriate assessment and treatment and also it is very important to discriminate between the several causes so the treatment will be specific, and better for the diseased person.

Lower urinary tract symptoms (LUTS) are the urological expressions increase with aging considerably and disturbing the day to day activity. 24–85% of diseased individual presents with urinary incontinence (UI) and is utmost worrying complaint for patients. Other striking urinary signs associated with aging are due to involuntary urinary bladder contractions and increased residual urine volume after micturition. Urinary bladder emptying as well as storage function is a controlled and complex process. So, understanding of these reasons and the progression of aging are vital in the work up of elder men with lower urinary tract system.

We know various old aged diseases are influence by numerous factors. Due to this we need a scientific assessment of all diseases related with lower urinary tract.

Initial step in management of diseased person with increased age with lower urinary tract system is proper evaluation that's include, the patient's health status and neurological functions. Nervous system examination is also a measure of the assessment which comprises prior history of stroke or any chronic neurological diseases or extra-pyramidal symptoms or any other. It is also vital to be acquainted with the Past urological procedures and other co morbidities. Physical examination is mandatory and history of other co-morbidities associated to the individuals.

Urodynamic evaluation comprises of monitoring of urinary bladder as well abdominal pressure during filling phase and during emptying phase also.

UDE is invasive, as well as time taking. Now a days use of UDS

becomes common tool of estimation of bladder outlet obstruction (BOO).

During UDE procedure complications like pain, mild hematuria, and dysuria and occasionally may be urinary retention or infection happens. Now days numerous number of diagnostic modalities available that widens the range for selecting less invasive tests to patients.

Lower urinary tract symptoms has various presentations but important are-

- First- 'Bladder outlet obstruction (BOO)'
- Second- 'Detrusor over activity (DO)'
- Third - 'Detrusor under activity (DU).'

In Patient of increased age versus younger patient -we have to differentiate aged patients from younger patients offering with same kind of disease. In elderly person with lesser life expectancy, our approach towards UDE will be altered. Example, any aged person who is unsuccessful to medical management for urge incontinence and symptoms continues after surgical treatment, then need not to be confirming that DO was reason as patient is medically not suitable for augmentation cystoplasty. But this would not be the scenario in a 60 year old patient who is doing regular workouts. Thus the practice of UDE not decided simply by counting the age of person nonetheless by judging patient biological age.

Detrusor over activity (DO) is additional predominant in aged person and, if there is some kind of upper motor neuron lesion, then DO is more or less presenting feature. UDS in this type of patients are a lot of time bothersome for patients and also tuff for the technician.

But we will be prepared to do, as the Urodynamic study aids in the treatment of the frail higher aged diseased person.

AIM AND OBJECTIVE

To assess the urodynamic findings in elderly male diseased persons with lower urinary tract disease related symptoms and also make a precise diagnosis of disease that leads to effective treatment.

Review Of Literature

Urodynamic evaluation is the study of the functional status of lower urinary tract by adequate techniques which were guided by the guidelines of International Continence Society (ICS). It includes measurement of vesical pressure, urethral pressure profile, pressure-flow studies (PFSs), uroflowmetry, EMG of pelvic floor and simultaneous fluoroscopic visualization of the lower urinary tract by way of video cystometrogram. Such findings are analyzed individually or collectively to evaluate the status of the LUT function.

There are two ways of urodynamic assessment(1)

1. Conventional-studies take place in UDE lab involving filling of urinary bladder artificially from outside.
2. Ambulatory study-it is study of function of lower urinary tract by natural filling reproducing everyday activities.

Detrusor pressure is passive and active forces on the wall of urinary bladder.

Cystometry-during filling phase of urinary bladder monitoring of vesical pressure with volume. Normal physiological filling rate is a rate of filling of urinary bladder less than predicted maximum.

Rate of urinary bladder filling during conventional UDE calculated by formula that is body weight divided by four.

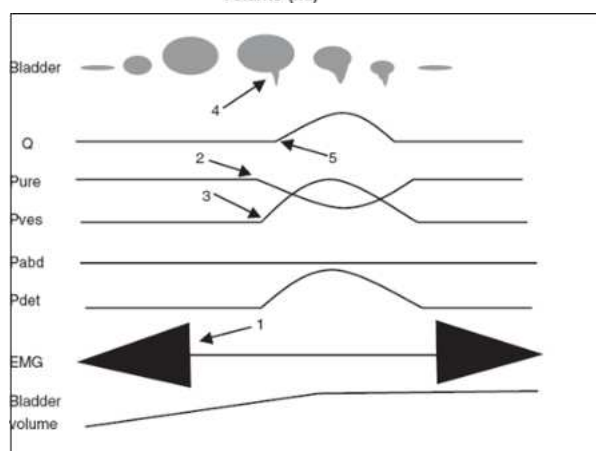
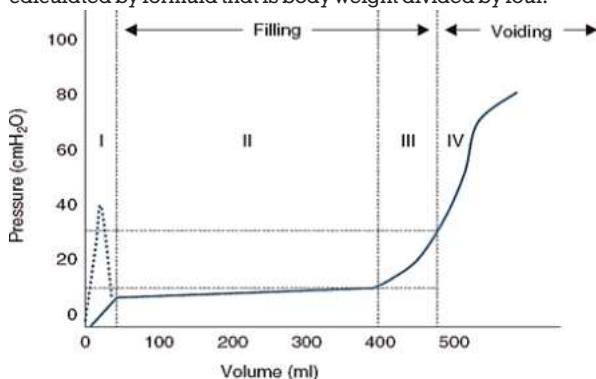


Figure 1: Different phases of micturition Atlas of urodynamics 2nd edition by J blaivas

The overhead mentioned picture showing the stander UDS graph with trivial activity of detrusor in filling phase and at the initiation of emptying phase, the bladder sphincter relax after that voiding starts.

There are several types of pattern of the UDS contemplates the primary detrusor muscle contraction, compliance of bladder, status of urine outflow. Even In case of increased abdominal pressure a positive urethral closure pressure is preserved by active urethral closure mechanism.

COMPONENTS OF URODYNAMIC STUDY⁽¹⁾

Urodynamic studies (UDS) use a set of measurements to assess the function and dysfunction of the lower urinary tract UDS has several components

1. Uroflowmetry
2. Post void residual urine volume
3. Cystometry
4. Pelvic muscle electromyography
5. Urethral pressure profile
6. Pressure flow studies

Uroflowmetry-

It measures rate of urine flow with time.(1,2)

It also assessing the emptying of bladder. This test is a noninvasive.

Important outcome in uroflow -voided volume, urine flow rate, average flow rate, maximum flow rate, voiding time flow time and time to maximum flow. Stander uroflow curve is bell-shaped.

Among all above mentioned parameters most important factor is Q_{max} (5). To conduct a good uroflow minimum amount of urine passed should be 160 ml. due to any reason anyone passes less amount of urine then interpretation will be wrong, in that case we have to repeat the test. Q_{max} is maximum speed of urine achieved during passing urine. By doing regular uroflowmetry of any patient we can evaluate the treatment response and progression of diseases. (8)

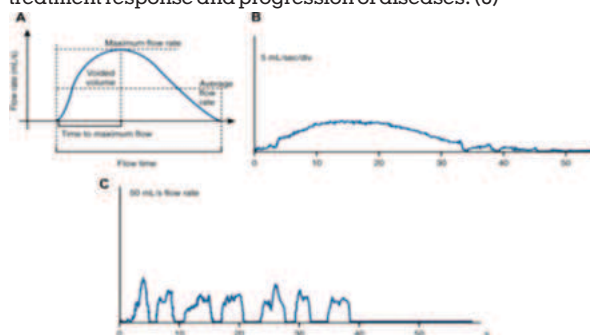


Figure 2: Few types of uroflow curves
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Post void residual urine-“ is an assessment of bladder emptying “.check by USG or Foleys catheter. Increase in Post void residual specifies difficulty in emptying. Patient need further work up. (1) Catheterization is gold stander for PVR assessment.

Cystogram/cystometrygram

Also known as filling cystometry,it is the process in which pressure versus volume changes of bladder is measured. We measure vesical pressure by putting catheter inside the bladder and measuring pressure, also measure abdominal pressure by rectal or stomal catheter. By knowing the above values we can calculate detrusor pressure (p det) by formula.(2)

$P_{det} = P_{ves} - P_{abd}$ We can appreciate involuntary contraction of detrusor during filling. The capacity of bladder, abdominal leak point pressure (ALPP) we can know.

In elderly aged male person P_{det} decreases with time.

Electromyography (EMG)

Recording of electric potentials generated by depolarization of muscle cell membrane. EMG is part of UDS.(3)

EMG measurement done in perineal sphincteric muscles to

estimate probable abnormality of perineal muscle function. EMG obtained by placing electrodes near desired muscle. EMG action is measured in both filling phase as well as emptying phase. Now days For EMG 2 perineal skin surface electrodes are used.

Urethral pressure profile (UPP) – it is graphical representation of urethral intraluminal pressure in entire length of urethra. Definition of urethral pressure is fluid pressure required to just open urethra. “UPP” recorded by withdrawal of a catheter pressure sensor along urethra. (3)

Video cystometrogram:

The study of the lower urinary tract's functioning state using suitable methods that were directed by the International Continence Society's (ICS) recommendations is known as urodynamic evaluation. It comprises vesical pressure measurement, urethral pressure profile, uroflowmetry, pressure-flow studies (PFSs), EMG of the pelvic floor, and videocystometrogram-assisted simultaneous fluoroscopic viewing of the lower urinary tract. These results are examined separately or in combination to assess the LUT function's condition. (1,2,15)

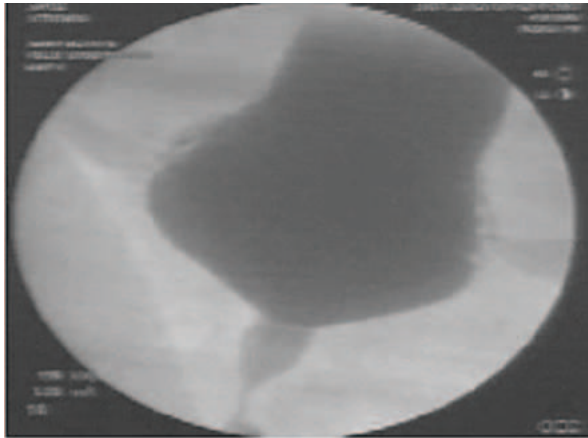


Figure 3: X-ray during voiding(3)
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Through the use of a radiopaque contrast solution, the bladder is filled during a videocystometrogram (VCMG) to provide simultaneous fluoroscopic viewing of the bladder and urethra during the filling and voiding phases. Pressure readings and structural data are obtained as a result of this procedure. (3)

This calls for more sophisticated and costly equipment. Standard UDS will provide the majority of the data required for clinical practice. Therefore, most units only conduct VCMG in particular circumstances, such as difficult cases including anatomic abnormalities, surgical operations that have failed in the past, or related neurological issues. Despite the functional data's anatomical description, it still has a limited relevance in elderly patients.

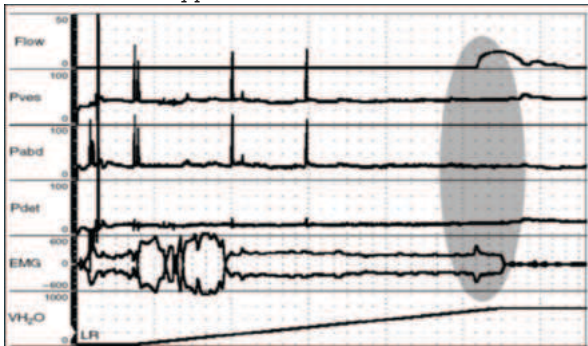


Figure 4: Normal Micturition with out an appreciable rise in Pdet.(3)

Detrusor over activity is an urodynamic parameter, described as idiopathic detrusor contractions in the filling phase. Detrusor over activity may be either of neurogenic derivation or could be idiopathic. This term idiopathic detrusor activity is a bit of misnomer. [2]”

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“Detrusor over activity” is one of substantial UDS reflection and may explain different storage symptoms. In aged person detrusor over activity common UDS finding. In urinary incontinence DO observed in UDE.

Compliance of bladder reflects viscoelastic property of urinary bladder. it is change in pressure by changing in volume. As age progress compliance decreases. Patient may reflect as urgency and frequency. Decrease in compliance may cause detrusor over activity. Detrusor over activity with decreased contraction of bladder surely differentiated from bladder outlet obstruction; usually both diseases' leads to increased post void residual urine. In nearly 50% these findings were witnessed in asymptomatic aged patients. This reflects in different manner in UDS.

Detrusor hyperactivity plus diminished contraction must be distinguished from bladder outlet obstruction, since both leads to high post void residual urine and may be associated with DO in up to fifty percent of cases. (1,11)

The diagnosis of detrusor over activity by means of impaired contractile property of bladder would be manifesting through the outcomes in addition to henceforth requisite of urodynamic evaluation is stressing in old age patients.

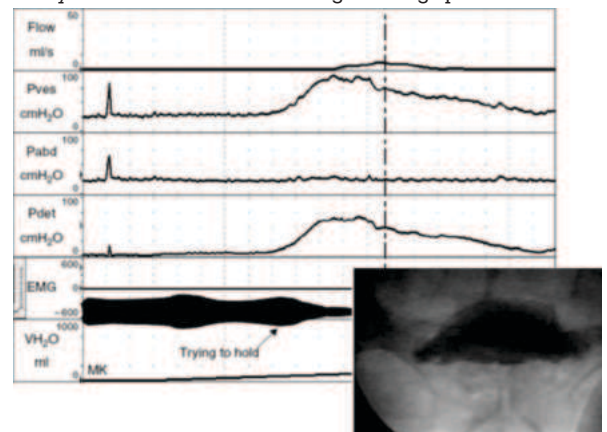


Figure 5: Grade 2 obstruction and type 3 detrusor over activity⁽³⁾

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In one study shows as forty-eight percent of men in old age group who are more than sixty years of age are found to be some amount of obstruction.

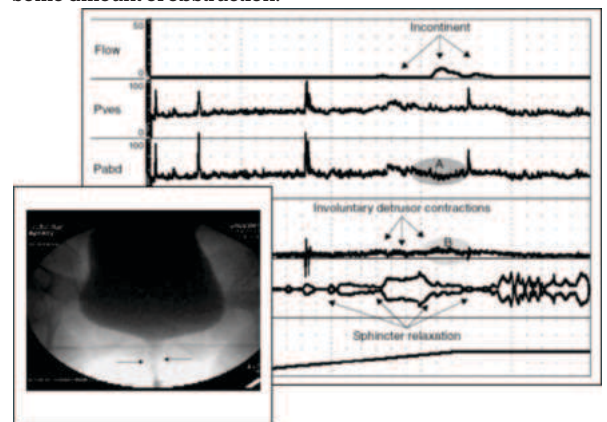


Figure 6: Low Magnitude Detrusor Overactivity

Types Of Voiding Patterns –

- First-Normal/unobstructed type -is described normal flow of urine with normal pdet.
- Second-obstructed type- is described by low flow of urine with high pdet. [5]

One more type is called hypo contractility which is categorized as low flow as well as associated with low Pdet. [1]

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“Bladder outlet obstruction index (BOOI)” –This UDS finding indicates about degree of bladder outlet obstruction.

$BOOI = P_{det} Q_{max} - 2 Q_{max}$

If $BOOI < 20$ is means no obstruction

If $BOOI 20-40$; equivocal

If $BOOI > 40$ means obstruction

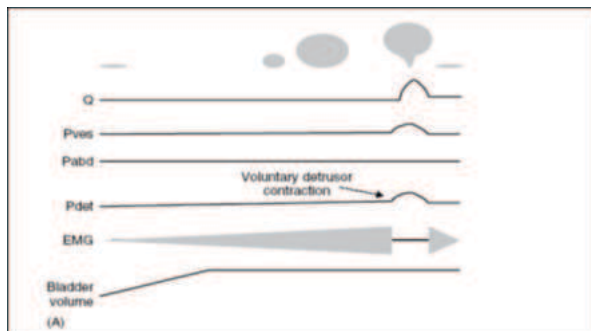


Figure 7: Without involuntary detrusor contractions. [3]

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Bladder contractility index (BCI) = $P_{det} Q_{max} + 5 Q_{max}$

BCI less than hundred indicative of DUA.

According to pdet value detrusor may be normal contraction, underactive/acontractile or overactive.

Men who are 50 years or older age group commonly presents with LUTS. Causes LUTS are multifactorial. It comprises mainly four issues

1. Impaired contractility of bladder
2. Sensory urgency
3. Bladder outlet obstruction
4. Detrusor over activity

The irritative symptoms like urgency, nocturea and frequency associates with voiding symptoms like poor stream and hesitancy. Detrusor over activity with or without BOO presents with urge incontinence.it is well established that both coexist in advancement of age with the degree of obstruction.(5)

The question of manner in which UDS helps is in the management of male LUTS has been one for period of time whether it is an useful tool in diagnosis of BOO before TURP?

In complex situation which requires invasive treatment, an accurate diagnosis is mandatory. Often depends upon the physician to decide the magnitude of information needed to make a proper decision on treatment protocols.

It is well known fact that irritative bladder symptoms and urge incontinence are commonly in those who have undergone surgery like TURP even though there is reduction of obstruction and relives symptoms.

This may be because of fact that these irritative LUTS exhibit multiple combinations.so in these cases UDS offer a decent help in predicting possibility of reduction after interventional procedure.

Some studies strain the need of performing routine UDS, before TURP, as still controversial. Main concern is the effects

on upper tract due to high voiding pressure with decreased compliance. Structural modification of urinary bladder will take place in due course and will become irreversible.

Patients Included:

This study involved male patients of

1. Age greater than fifty years having complains of lower urinary tract complaints,
2. With or without urinary retention and
3. With or without co-morbid illness.

Excluded Patients:

1. Patients below fifty years
2. Female gender

Method Of Study:-

One hundred men over 50 years age who had a history LUTS were slected in our study sample.

Before beginning this trial, informed consent was acquired from every patient who volunteered to take part.

To gather comprehensive medical and personal histories,each patient underwent an interview.

Based on their primary complaints, the patients were categorized into two subgroups: irritative and obstructive symptom groups.

Urinary frequency, urgency, nocturia, and/or urge incontinence are considered irritating symptoms; straining to pass pee, a thin urinary stream, intermittency, and incomplete sense emptying are considered obstructive symptoms.

Every detail was entered in accordance with the preforma (Appendix).In order to record urine volume, incontinence and urgency episodes, as well as daytime and overnight frequencies, all patients have finished the entire voiding diary and pad test for the 3 days- frequency volume chart. For each case, the IPSS has been determined.

The following tests were carried out: PVRquntification, noninvasive free flow uroflowmetry, urine culture, and urinalysis.

Patient preparation: urodynamic examination is performed on all patients.

We took a laxative the night before class.

On the day of the operation, the patient is ready.

Both the culturepositive and culturfree patients were treated and started on antibiotics prior to the operation.

Before the catheter was inserted and the UDE started, the patient was instructed to void. Every time it is used, the UDE machine gets primed.

Two channels on a single catheter (size six French) were utilized: one for measuring ves and the other for putting NS in the bladder. The After putting, the tube was fixed. Additionally, the rectal tube of six F was placed in via the anus using lubricant jelly, with the tip kept 10 to 15 cm beyond the anal verge. The urinary bladder filling with room-temperature saline at a rate of 20–40 ml every mint. When the patient feels a strong urge to void, they also void in the same position as during the filling phase.

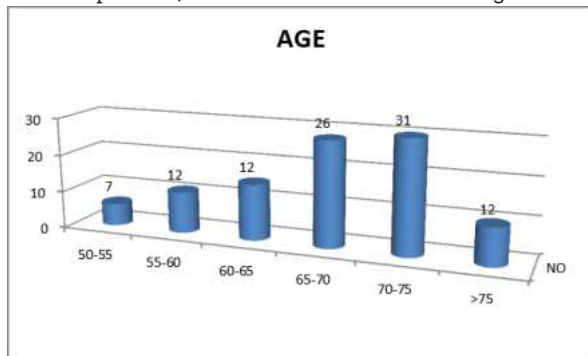
Assessments were made of urinary bladder compliance, capacity, abdominal leak point pressure, urgency or pain, normal want to void, robust need to void, and bladder feeling (initial sensation of fullness).

The "Q max", average flow rate, max pdet, and p det on maximum flow were all noted throughout the voiding phase. Every one of the aforementioned parameters was examined. Chisquare test is utilized to analyze the uds parameters, and the "student t test" has been used to equate the irritative and obstructive LUTS clusters. A significant p-value is less than 0.05.

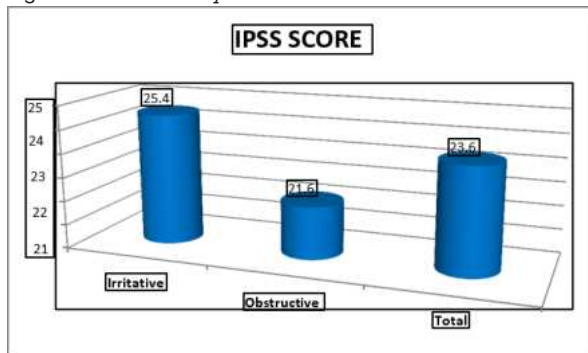
RESULTS

One hundred patients in all were enrolled in the study; sixty of them had irritative LUTS, and forty of them had obstructive LUTS.

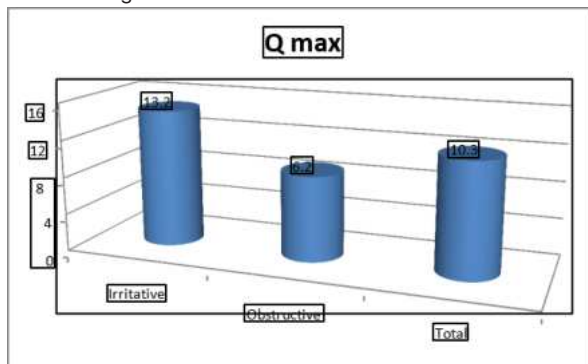
The age range of 70–75 years old is the maximum number of patients. The irritative group's mean age is 67.4, whereas the obstructive group's mean age is 73.6 years. The sample's average oldness is 71.4 years old. The value of which is 0.67 after computation, indicates that the result is non-significant.



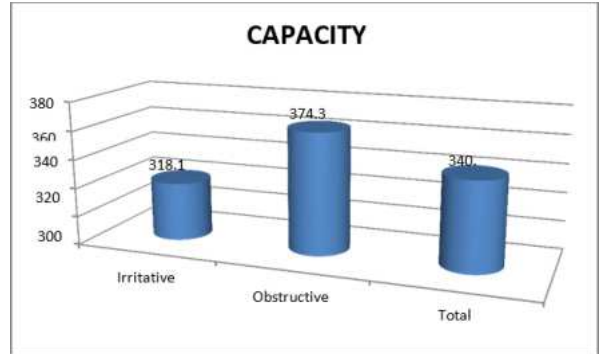
In the irritative LUTS group, the mean IPSS score is 25.4/35; in the obstructive group, it is 21.6/35; and inclusive sample mean score is 23.6/35. Furthermore, the p-value is 0.13, means not significant statistically.



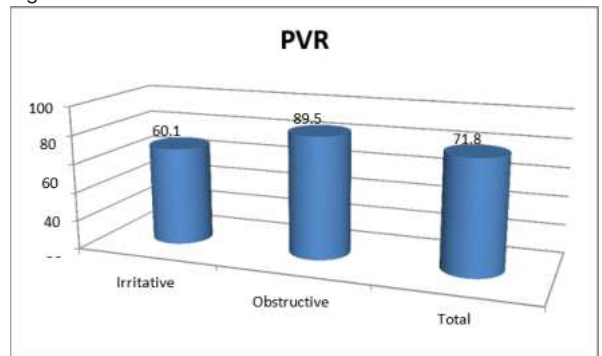
In the irritative LUTS group, the mean Qmax (highest flow rate) is 16.5, while in the obstructive LUTS group, it is 8.4. The group's average Qmax is 13.2, and a p value of 0.03 indicates statistical significance.



The mean bladder capacity for the irritative LUTS group is 318.13 ml, while for the obstructive LUTS group it is 374.3 ml. The group's average bladder capacity is 340.06 ml, and a p-value of 0.32 indicates that the results are non-significant.



The mean PVR in the obstructive group is 89.5 ml, while it is 60.1 ml in the irritative LUTS group. The cluster average PVR is 71.8 milliliters. $P = 0.23$ indicates statistical non-significance.



Timing and detrusor pressure value are used to compute detrusor pressure during the filling phase. Over activity of the detrusor in numerous cases has been found. The maximal detrusor pressure as well as detrusor p det Qmax are computed for the duration of the voiding phase.

The mean p det Qmax assessment for the irritative group is 31.9 cm H₂O, while for the obstructive group, it is 30.1 cm H₂O. The average p-det Qmax is 31.1 cm H₂O overall. When p-value is 0.34, it indicates statistical non-significance.

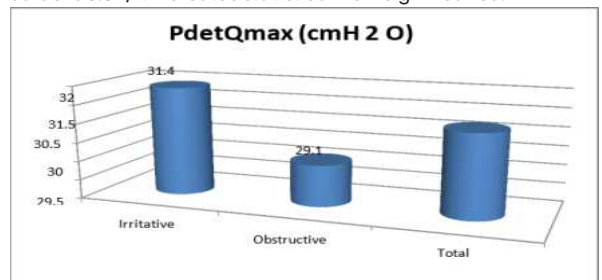
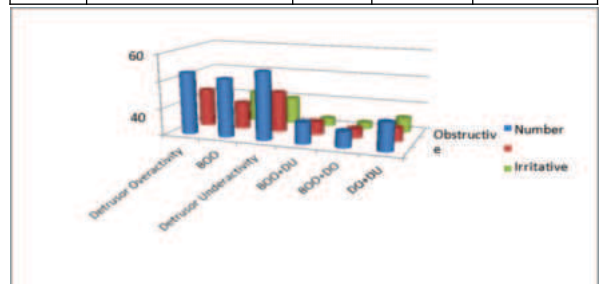
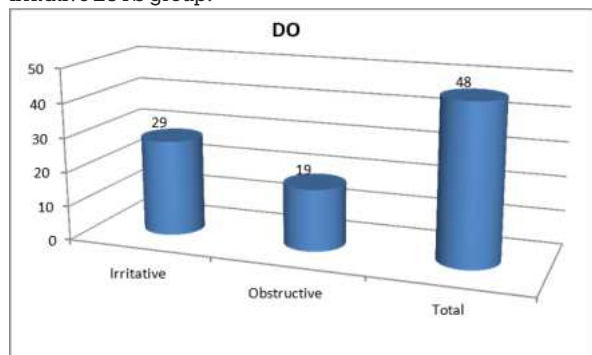


Table 1: UDE Result

S NO	UDE parameter	No	Irritative	Obstructive
1	DO	49	29	20
2	BOO	42	19	25
3	DU	51	32	19
4	BOO and DU both	15	11	4
5	BOO and DO both	13	6	7
6	DO and DU both	20	8	12



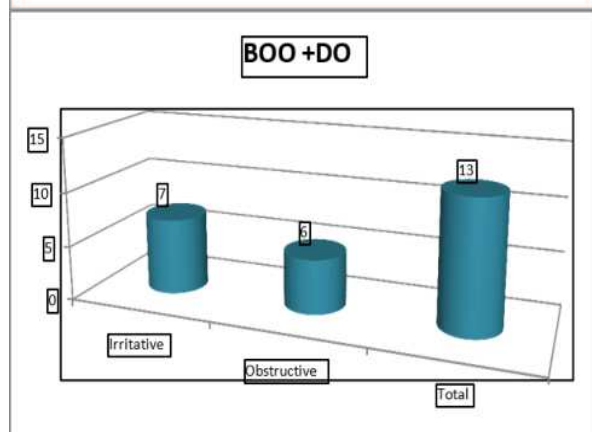
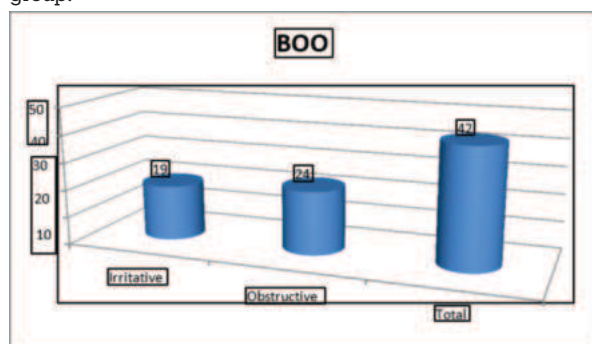
48 patients were found to have detrusor overactivity (DO), of which 19 fall into the obstructive group and 29 fall into the irritative LUTS group.



$$BOOI = p \det Q_{\max} - 2Q_{\max}$$

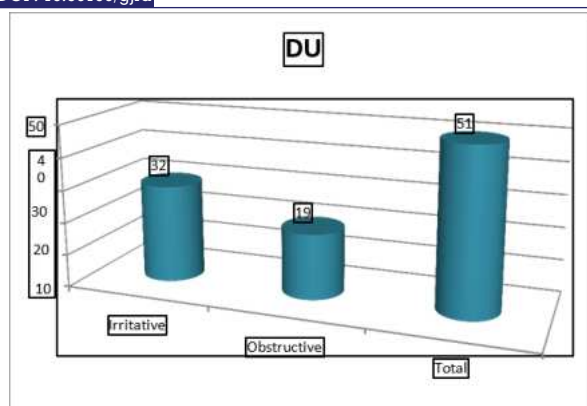
42 patients in all displayed BOO. Of these 19 patients are classified as members of the irritative LUTS group and 23 patients as members of the obstructive group.

A large number of people have both DO and bladder outlet blockage (BOO). 13 individuals in our study group had BOO+DO. Of these, 7 were classified as belonging to the obstructive group and 6 as belonging to the irritative LUTS group.

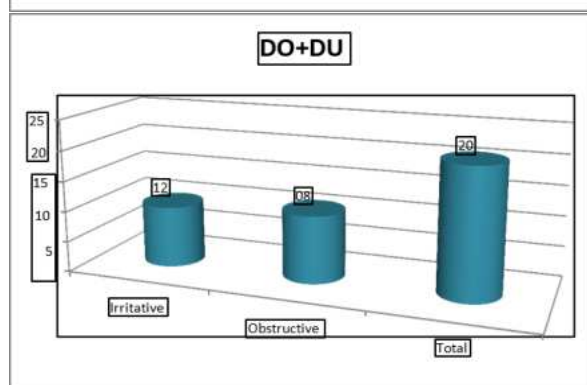
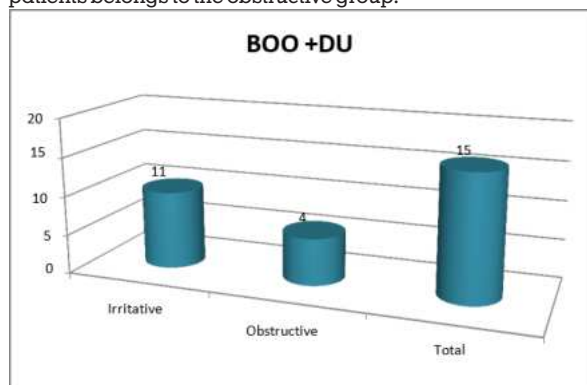


The bladder contractility index (BCI) is used to calculate detrusor underactivity (DU). A score of less than 100 is pathognomic for DU. The formula for BCI is $p \det Q_{\max} + 5 Q_{\max}$. Fifty patients with DU have been observed. Of 42 patients in all displayed BOO. Of these 19 patients are classified as members of the irritative LUTS group and 23 patients as members of the obstructive group.

A large number of people have both DO and bladder outlet blockage (BOO). 13 individuals in our study group had BOO+DO. Of these, 7 were classified as belonging to the obstructive group and 6 as belonging to the irritative LUTS group. hem, 30 patients have irritative LUTS and 20 belong to the obstructive group.



Numerous instances had both DU and bladder outlet blockage (BOO). 15 patients were found to have BOO+DU. Of them, 11 diseased belongs to the irritative LUTS group and 4 patients belongs to the obstructive group.



A few patients had both detrusor overactivity (DO) and DU upon presentation. 20 patients in all displaying DO+DU. Of these 20 patients, 12 were classified as obstructive and 8 as irritative.

DISCUSSION

For men in their higher age groups, up to 80% experience lower urinary tract symptoms. In elderly males, it is complex and multifaceted. For many patients, the primary complaint at presentation is a weak or thin urine stream. When an aged patient presenting by way of lower urinary tract symptoms, the basic work up (which includes the patient's pertinent medical history, symptom evaluation, clinical examination, and urine analysis) should be completed before the patient is sent for UDS.

UDS is the primary tool for older men who present with LUTS and BOO characteristics. We are unable to brand as BOO based just on LUTS history. Urinary flow rate monitoring is a very helpful technique to start with when monitoring therapy response, either during or after treatment.

Research has demonstrated that almost onethird of older men

having lungtransplants do not exhibit urodynamic signs of blockage.

Hypocontractility of the detrusor is the primary cause of reduced flow rate in 30% of individuals. Thus, low flow rate does not necessarily indicate BOO.

Similar to this, a normal or high flow rate does not rule out obstruction because an outlet obstruction is reported in 8% of symptomatic males whose Qmax is more than 15 ml/sec. Two flow rates should ideally be achieved. Even after many recordings, the Qmax results at the accessible voided volumes ought to be taken into account if patients are unable to produce such a voided volume.

Therefore, in males with a Qmax greater than 10 ml/sec, UDS studies are essential before definitive invasive therapy since there is a chance of blockage and PFSs are not always required. UDS provides a conclusive diagnosis in patient evaluations prior to surgical interventions or in situations where an accurate diagnosis of disease is crucial.

It has been demonstrated that invasive UDS in the form of PFSs should only be carried out if the information gathered indicates that it would influence the treatment decision. In particular, if any operations are being conducted.

There is proof that when an outlet obstruction operation is performed on patients with uro-dynamically verified BOO.

Patients with LUTS who do not have BOO are less likely to benefit from scheduled surgery or other invasive treatments meant to relieve blockage's is helpful in patients over 80 years old prior to TURP resection because invasive procedures like TURP are associated with higher rates of morbidity and death in this patient age group. Additionally, there's a chance that the patients' symptoms could be caused by conditions other than BOO, such as age-related changes.

A few alterations associated with aging include a decline in Qmax, an increase in PVR urine volume, a reduction in bladder capacity, and a decrease in bladder compliance. The same facts are confirmed by this study.

The primary PFS metric that matters most is the detrusor pressure at maximum urine flow rate. Men patients over 75 years old with symptoms of lower urinary tract syndrome (LUTS) typically have a Qmax value of 10–15 ml/s and "IPSS" more than 7 with-out Bladder outlet obstruction.[10] In these situations, no surgical procedure, including TURP, would be beneficial[9].

The detrusor pressure (pdet) in this investigation was 31.2 cm H2O at the highest urine flow rate (p det Qmax). Determining the cause of elderly men's avoidance of dysfunction is a challenging task. There are numerous possible causes for it, including BOO or DU. PFSs are the only way to differentiate between the two, and as patients with established BOO have better outcomes, they are particularly important when planning surgery. A considerable proportion of older patients have a decline in bladder capacity and DO as a symptom of silent bladder dysfunction. Every one of these standards must be met by UDS. Numerous papers state that senior individuals ought to utilize UDS liberally. However, certain UDS are risky and have unfavourable effects in addition to being invasive.

A few studies found a strong correlation between the age factor and the presence of asymptomatic bacteriuria prior to cystometry. Thus, it all depends on the clinical evaluation, the kind of test to be done and when to do it, and whether or not the proposed treatment plan needs to be carried out methodically. In general, invasive UDS studies are only carried out in certain circumstances and only when reversible causes of voiding

dysfunction have been ruled out. UDS are recommended for elderly patients with high PVR volumes, substantial LUTS 7 concomitant neurologic disorders, and prior lower urinary tract surgery. They are also recommended whenever a surgical procedure is being discussed.

When treatment cannot be achieved with medication or behavioral therapy and more care is needed, UDS is advised. Bladder outlet obstruction and/or overactive detrusor muscles account for 70% and 40% of the causes of lower urinary tract symptoms in men, respectively. Less information is available about the connection between detrusor overactivity in men and symptoms of the lower urinary tract.

Study's findings demonstrated a significant relationship between the symptoms and urodynamic data. Most common diagnosis for men who exhibit urge and urgency incontinence is idiopathic detrusor overactivity. Above half of the patients evaluated for lower urinary tract warning sign in neurologically intact men without blockage had idiopathic detrusor over-activity; the symptoms did not match the urodynamic diagnosis.

Patients in our study primarily complain of irritative and obstructive symptoms. 46 participants in this study were found to have detrusor overactivity (DO). Of these, bladder outlet blockage and duodenal ulcer are not statistically significant; nevertheless, 18 patients are classified as obstructive cluster and twenty eight patients as irritative group, both of which are statistically significant ($p < 0.01$). The symptoms of DO are predicted by these findings.

In a 1999 study by Lee, 100 individuals with symptoms related to the lower urinary tract were examined. The results of the UDE revealed that 51% had BOO, 37% had detrusor underactivity, and 47% had detrusor over activity.

75 out of 100 individuals, or 75 percent of the patients in our study, had detrusor muscle dysfunction. Fifty patients displayed signs of whereas sixteen had concurrent bladder outlet obstruction (BOO) and twenty-one had concurrent detrusor overactivity. Forty-three cases of BOO and forty-six cases of DO have been diagnosed, respectively. Men with idiopathic detrusor hyperactivity may merely have a UDE finding, but it is frequently linked to bladder outlet obstruction. A significant number of males were referred for urodynamic assessment of lower urinary tract symptoms, and Thomas and Abrams, BJU 2000, examined the urodynamic diagnosis in these cases.

Of the urodynamic findings, bladder outlet blockage was the most prevalent, occurring in around 70% of the research participants. Idiopathic detrusor hyperactivity was also present in nearly half of the obstruction patients. Of the patients in this study, 43% had blockage of the bladder outlet, and 12% also had overactivity of the detrusor muscles concurrently.

CONCLUSION

Upon analyzing the study's findings, it can be concluded that males over 50 who exhibit symptoms related to their lower urinary tract should be evaluated using UDS.

An astounding fraction of senior patients were found to have urodynamic irregularities, such as detrusor underactivity (DU) detrusor overactivity or "bladder outlet obstruction". In addition, the urodynamic irregularities are highly varied, indicating a range of underlying causes.

Individuals whose overactive detrusors cause LUTS symptoms also have a markedly reduced warning sign score and quality of life. Additionally, it is highly influenced by value

of postvoid remaining pee as determined by pressure flow studies and urine outflow blockage as measured by uroflowmetry.

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