

Research Article

A comparative Study of Treatment Outcome of Lower Urinary Tract Symptoms with or without Cystoscopy Use in Men above the Age of Fifty Years

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Article History: | Received: 05.05.2020 | Accepted: 26.06.2020 | Published: 28.06.2020 |

Abstract: **Introduction:** Lower urinary tract symptoms (LUTS) is a common condition, with Benign prostatic hyperplasia (BPH) being a frequent condition in men over 50 years of age. The natural history of BPH is characterized by an age-dependent increase in histological changes and an increase in prostate size. Cystoscopy is often used in the diagnosis and treatment. This study aims to assess the relative use of cystoscopy in patients with LUTS. **Methods:** The study design is a descriptive, prospective study design. The targeted group were male patients above the age of 50 years who presented with lower urinary tract infection in Yastabshiron, and Ibn Sina hospitals between the periods of (August 2015-January 2016). Primary data collected from sampling units using a questionnaire containing questions of the variables of interest. The data was analyzed by using Statistical Package for Social Science (SPSS) and chi square for analysis with alpha level of significance 95%. All appropriate permission and consents were taken. **Results:** BPH was diagnosed in 90% of cases. 60% of patients had complications. The most common complications was Orchitis/Epididymitis and found to be in 26% in study participants, followed by hematuria in 18%, dysuria in 12% and stricture in 4%. The mean reduction in IPSS score for those receiving medical treatment was 4.8, while in the cystoscopy group it was 3.8. Independent sample t test analysis shows that there is a statistical difference between the cystoscopy and medical treatment groups ($p=0.016$). **Conclusion:** A trial of medical treatment was found to be significantly better at treating the symptoms of patients with LUTS as compared to cystoscopy. Since cystoscopy is associated with a high rate of complications, a trial of medical treatment should be the first line treatment.

Keywords: LUTS: lower urinary tract symptoms; BPH: benign prostatic hyperplasia; IPSS: international prostate symptom score.

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BACKGROUND

Lower urinary tract symptoms (LUTS) is a term used to describe a range of symptoms related to problems of the lower urinary tract (bladder, prostate and urethra). LUTS is a recent term for what used to be known as prostatism (Abrams, P. 1994). LUTS are common in men and are more likely as men get older to affect approximately 40% of older men (Rowhrborm, C. G., & McConnell, J. D. 2002). However, LUTS can also happen in young men, although the cause of the symptoms may be different.

LUTS are broadly grouped into voiding (obstructive) symptoms or storage (irritative) symptoms. A man may have mainly voiding symptoms, mainly storage symptoms, or a combination of both. The International Prostate Symptom Score (IPSS) can be used to gauge the symptoms, along with physician examination. Other primary and secondary tests are

often carried out, such as a PSA (Prostate-specific antigen) test (The Prostate-Specific Antigen (PSA) Test:), urinalysis, ultrasound and cystoscopy. The International Prostate Symptom Score (IPSS) (IPSS) is an 8 question (7 symptom questions + 1 quality of life question) written screening data sheet is used to screen for, track the symptoms, and rapidly diagnose the disease.

The 7 symptoms questions include feeling of incomplete bladder emptying, frequency, intermittency, urgency, weak stream, straining and nocturia, each referring to during the last month, and each involving an assignment of a score from 1 to 5 for a total of maximum 35 points (IPSS). The 8th question of quality of life is assigned a score of 1 to 6. The results is classified into 0-7 Mildly symptomatic, 8-19 Moderately symptomatic and 20-35 Severely symptomatic (Cunningham, G. R. *et al.*, 2014).

In addition to diagnosis and charting disease progression, the IPSS is effective in helping to determine treatment for patients for example; which therapeutic approach should be used for BPH.

Benign prostatic hyperplasia (BPH), also known as benign prostatic hypertrophy, is a histologic diagnosis characterized by proliferation of the cellular elements of the prostate. BPH involves hyperplasia of prostatic stromal and epithelial cells, resulting in the formation of large, fairly discrete nodules in the transition zone of the prostate (Carballido, J. *et al.*, 2011).

Both the glandular epithelial cells and the stromal cells (including muscular fibers) undergo hyperplasia in BPH (Wasserman, N. F. 2006). Most sources agree that of the two tissues, stromal hyperplasia predominates.

The diagnosis of BPH can be performed by; Digital rectal examination, or/ and laboratory studies such as Prostate-specific antigen, or/ and ultrasonography, or / and IPSS (international Prostate Symptoms Score)/AUA-SI (American Urological Association- Symptom Index) (McConnell, J. D. *et al.*, 1994).

The management of the BPH needs an integration of lifestyle modification and pharmacological or surgical approaches ("Benign prostatic hyperplasia"; & American Urological Association Guideline: Management of Benign Prostatic Hyperplasia (BPH)).

A urinary tract infection (UTI) is an infection in any part of the urinary system including: kidneys, ureters, bladder and urethra. While most infections involve the lower urinary tract specifically the bladder and the urethra (Doluoglu, O. G. *et al.*, 2012).

The pathophysiology of UTI is the usual route of inoculation in males is with gram-negative aerobic bacilli from the gut, with *Escherichia coli* being the most common offending organism. Recent hospitalization, urinary catheter, and fluoroquinolone use in the past 6 months are independent risk factors for fluoroquinolone resistance in community-onset febrile *E coli* UTI (Van der Starre, W. E. *et al.*, 2011).

A study in Minneapolis, USA aimed to compare the clinical effectiveness and harms of finasteride versus placebo and active controls in the treatment of lower urinary tract symptoms (LUTS). The results were that Finasteride consistently improved urinary symptom scores more than placebo in trials of > 1 year duration, and significantly lowered the risk of BPH progression (acute urinary retention, risk of surgical intervention, ≥ 4 point increase in the

AUASI/IPSS). The author reached a conclusion that Finasteride improves and effective in treating long-term urinary symptoms (Center for Chronic Disease Outcomes Research (111-0). 2010).

The quasi-experimental study was conducted in Pakistan from June 2009 to June 2010 to assess the role of flexible cystoscopy in the diagnosis of lower urinary tract pathologies. The most common pathology among males was enlarged prostate in 127(8.4%) patients. Among females, urethral stenosis was the most common pathology in 57(3.8%) patients. Transitional cell carcinoma was seen in 57(3.8%) patients having hematuria with inconclusive ultrasound and intravenous urography. All patients tolerated the procedure well. It was found that flexible cystoscopy was an effective, well tolerated and easy way of detecting lower urinary tract pathologies among outpatients (Sajid, M. A. *et al.*, 2015).

In 2011 a retrospective study was conducted in University of Abuja, Nigeria to review the pattern of LUTS pathology. It was found that the Evaluation of LUT conditions using modern medical technology is feasible in a developing country such as Nigeria. While there are no unique technological limitations, the costs of treatment in a private urology centre may present specific challenges to such comprehensive evaluation of patients. Additionally, we show in this study that lower urinary tract conditions are predominantly prostate-related and as in other parts of the world, screening with PSA increases the detection of organ confined prostate cancer (Akporiaye, L. E., & Aisuodionoe-Shadrach, O. I. 2013).

Stav K *et al.*, conducted study to determine the early complications of rigid cystoscopy and the impact on patients' quality of life and sexual performance. A decline in libido was reported by 55.6% (25/45) and 50% (3/6) of the sexually active men and women, respectively. Cystoscopy was associated with a decrease Erectile Dysfunction Intensity Score from 15.6 to 9.26 during the first 2 weeks ($P=0.04$). The study lead to a conclusion that rigid cystoscopy is well tolerated by most patients and has only a minor impact on quality of life. However, cystoscopy transiently impairs sexual performance and libido. The early complications are mild and correlate with a diagnosis of BPH (Stav, K. *et al.*, 2004).

This study was aimed to compare the treatment outcomes of lower urinary tract symptoms with or without cystoscopy use in men above the age of fifty.

METHODOLOGY

A descriptive, prospective study conducted between the periods of August 2015 to January 2016 in Yastabshiron and Ibn Sina hospital at Khartoum state. Targeted group was men patients above the age of 50 years that presented with lower urinary tract symptoms

Yastabshiron hospital and Ibn Sina hospital. Inclusion criteria for this study include patient above the age of 50 who presented with lower urinary tract symptoms without clear indication for performing cystoscopy. : patient above the age of 50 who presented with lower urinary tract symptoms with clear indication for performing cystoscopy eg: hydronephrosis, prostate size more than 50g, elevated PSA...etc had been excluded. Primary data was collected from sampling units using a questionnaire containing questions of the variables of interest.

Data processing and analysis: Data was analyzed by using Statistical Package for Social Science (SPSS) version 24 and chi square for analysis with alpha level of significance 95%.

Data Protection and confidentiality: All data collected was treated with sensitivity and respect. The

data was protected by a password. All patient names were omitted and replaced with Patient ID numbers. The gathered information was not used for any purpose except this work.

Ethical Consideration: Ethical Approval and Permission was taken from Yastabshiron and Ibn Sina hospital.

RESULTS

A total of 100 cases were collected. 50 had medical treatment, while 50 had cystoscopy. Of those doing cystoscopy, BPH was found to be the diagnosis in 90% of cases. The second most common diagnosis was urethral stricture, at 4%. Bladder neck stenosis, granuloma and bladder cancer all individually 2%.

Table (1) and Figure (1).

Table 1. Shows the cystoscopy findings in percentage of 50 patients from the sample size

Diagnosis	Frequency	Percentage
BPH	45	90%
Urethral stricture	2	4%
Bladder neck stenosis	1	2%
Granuloma, Bilharzia	1	2%
Bladder Ca	1	2%
Total	50	100%

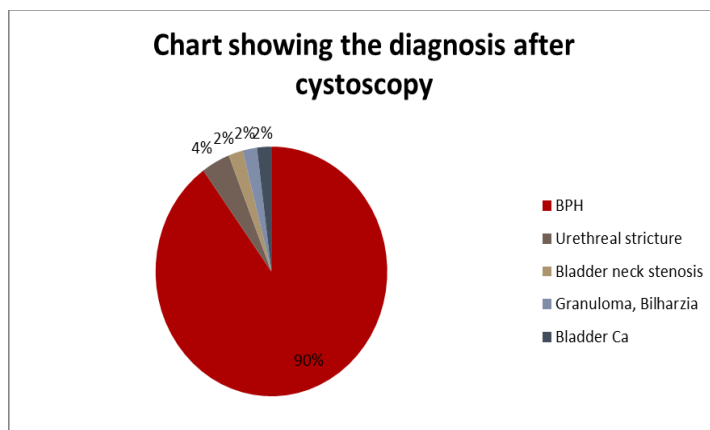


Figure 1: shows the cystoscopy findings in percentage of 50 patients from the sample size.

40% of patients had no complications from the procedure, while 60% did. The most common complications was Orchitis/Epididymitis at 26%,

followed by hematuria at 18%, dysuria at 12% and stricture at 4%. **Table (2) and Figure(2).**

Table 2. Shows the complications that occurred due to the use of cystoscopy.

Complication	Frequency	Percentage
Hematuria	9	18%
Dysuria	6	12%
Orchitis & epididymitis	13	26%
Urethral stricture	2	4%
None	20	40%
Total	50%	100%

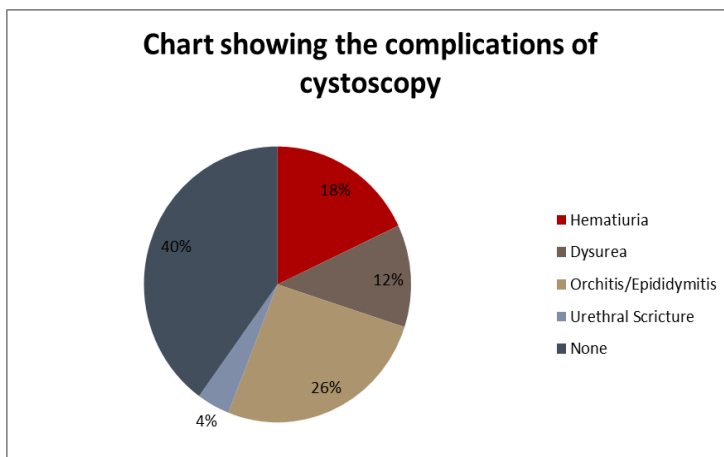


Figure 2: shows the complications that occurred due to the use of cystoscopy

The IPSS scores of patients were assessed. Overall the mean IPSS score before treatment was 15.3, ranging from 9 to 20. After treatment this fell to 10.9, with the scores ranging from 5 to 16. Overall the mean reduction in IPSS score was 4.4 after treatment.

The IPSS scores before treatment for the patients who were given medication was 15.2 while for the cystoscopy group was 15.4. Independent sample t test was conducted to test for difference, and showed no significant difference between the two groups ($p=0.801$).

The mean IPSS score after treatment for those receiving medication was 10.4 while in the cystoscopy group the mean was 11.5. Independent sample T test

showed a significant difference between the two, with a value of ($p=0.038$). **Figure (3), figure (4)**

The effect of treatment on IPSS score was measured by calculating the difference between the before and after scores. The mean reduction in IPSS score for those receiving medical treatment was 4.8, while in the cystoscopy group it was 3.8. Independent sample T test analysis shows that there is a statistical difference between the cystoscopy and medical treatment groups ($p=0.016$).

92% of participants are directly responded to medical treatment, whereas only 8% did not respond. **Figure (5).**

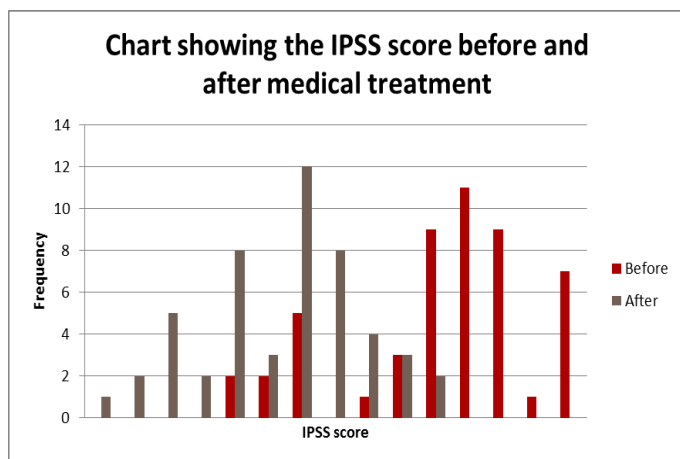


Figure 3: shows the IPSS score before and after medical treatment.

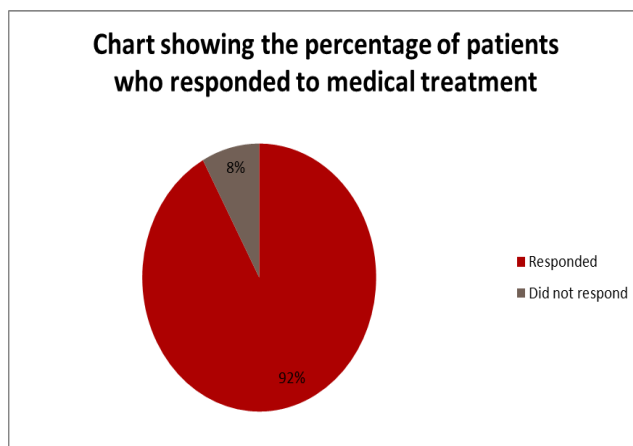


Figure 4: shows the IPSS score before and after the use of cystoscopy.

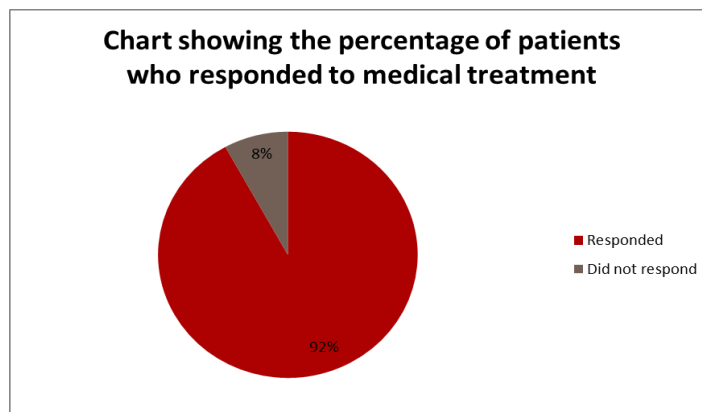


Figure 5: shows the percentage of patients who respond to medical treatment.

DISCUSSION

The most common finding on cystoscopy was BPH, and on this study BPH accounted for 90% of cases. This finding mimics that of the studies in Pakistan and in Nigeria, both finding prostate pathology to be the most common (Sajid, M. A. *et al.*, 2015; & Akporiaye, L. E., & Aisuodionoe-Shadrach, O. I. 2013). The second most common finding was urethral stricture, which was the most common finding in Pakistani women (Sajid, M. A. *et al.*, 2015). With 60% of patients having some complication from the procedure, cystoscopy has a high complication rate. This finding contradicts the study conducted in Pakistan, which found that cystoscopy was well tolerated by patients (Sajid, M. A. *et al.*, 2015). However Stav K *et al.*, found that cystoscopy complication rate was high, and was associated with a decreased libido and erectile dysfunction (Stav, K. *et al.*, 2004). With such a high rate of complications, cystoscopy should only be performed when no better options are available.

The 6th International Consultation on New Developments in Prostate Cancer and Prostate Diseases in Paris stated that only treatments with strong evidence of their effectiveness should be conducted (IPSS).

Medical treatment was significantly superior to cystoscopy ($p=0.038$), treating 92% of cases. The mean reduction in IPSS score for those in the medical treatment group was 4.8 while for those in the cystoscopy group it was 3.8. With a treatment response rate of 92% and being significantly superior to cystoscopy, medical treatment should be the first line treatment for patients with LUTS. The effectiveness of medical treatment was also found in the American study, conducted in Minneapolis (Center for Chronic Disease Outcomes Research (111-0). 2010).

This study is the first of its kind, and further research must be conducted on this matter due to its importance. The implementation of such technology in the clinical diagnosis of diseases is very critical but needs further research.

CONCLUSION

Medical treatment was found to be significantly better at treating the symptoms of patients with LUTS as compared to cystoscopy. Since cystoscopy is associated with a high rate of complications, medical treatment should be the first line treatment.

Recommendations

The results obtained were valuable to the extent that the researcher finds himself quite impressed and rather encouraged to promote the use of medical treatment over cystoscopy as first-line, Reduce the use of cystoscopy, expect where medically indicated, reduce the level of complications and Regular follow up for patients after undergoing cystoscopy to determine the severity of the complications if developed.

Increase doctor training, to reduce the complications associated with cystoscopy and Increase doctors awareness about the dangers of cystoscopy should be encouraged.

REFERENCE

1. "[Benign prostatic hyperplasia](#)". University of Maryland Medical Center
2. [Guideline] American Urological Association Guideline: Management of Benign Prostatic Hyperplasia (BPH). American Urological Association. Available at <https://www.auanet.org/education/guidelines/benign-prostatic-hyperplasia.cfm>. 2014; Accessed: July 24, 2015.
3. Abrams, P. (1994). "New words for old: lower urinary tract symptoms for "prostatism"". *BMJ* 308 (6934): 929–30. doi:10.1136/bmj.308.6934.929. PMC 2539789. PMID 8173393
4. Akporiaye, L. E., & Aisuodionoe-Shadrach, O. I. (2013). Lower urinary tract pathology evaluation in Nigeria: practice and limitations at a private urology centre. *West African Journal of Medicine*, 32(3), 216-219.

5. Carballido, J., Fourcade, R., Pagliarulo, A., Brenes, F., Boye, A., Sessa, A., ... & Castro, R. (2011). Can benign prostatic hyperplasia be identified in the primary care setting using only simple tests? Results of the Diagnosis IMprovement in PrimAry Care Trial. *International journal of clinical practice*, 65(9), 989-996.
6. Center for Chronic Disease Outcomes Research (111-0). (2010). Minneapolis Veterans Affairs Medical Center, One Veterans Drive, Minneapolis, MN, USA. Finasteride for benign prostatic hyperplasia. [Cochrane Database Syst Rev](#). 2010 Oct 6 (10), CD006015. doi: 10.1002/14651858.CD006015.pub3.
7. Choe, J. H., Kwak, K. W., Hong, J. H., & Lee, H. M. (2008). Efficacy of lidocaine spray as topical anesthesia for outpatient rigid cystoscopy in women: a prospective, randomized, double-blind trial. *Urology*, 71(4), 561-566.
8. Cunningham, G. R., Kadmon, D., O'Leary, M. P., & Eamranond, P. (2014). Epidemiology and pathogenesis of benign prostatic hyperplasia. *UpToDate Walth MA [Internet]*.
9. Doluoglu, O. G., Gokkaya, C. S., Aktas, B. K., Oztekin, C. V., Bulut, S., Memis, A., & Cetinkaya, M. (2012). Impact of asymptomatic prostatitis on re-operations due to urethral stricture or bladder neck contracture developed after TUR-P. *International urology and nephrology*, 44(4), 1085-1090.
10. International Prostate Symptom Score (IPSS) at Urological Sciences Research Foundation.
11. McConnell, J. D., Barry, M. J., & Bruskewitz, R. C. (1994). Benign Prostatic Hyperplasia: Diagnosis and Treatment. Clinical Practice Guideline. No. 8, AHCPR Publication No. 94-0582. Rockville, Md: Agency for Healthcare Policy and Research., Public Health Service, US Department of Health and Human Services, 1994.
12. Rowhrborm, C. G., & McConnell, J. D. (2002). Etiology, pathophysiology, epidemiology and natural history of benign prostatic hyperplasia. *Campbell's Urology*, 37, 1297-1330.
13. Sajid, M. A., Khurshid, H., Saeed, M., & Salahuddin, O. (2015). Flexible cystoscopy a valuable diagnostic tool for lower urinary tract pathology. *J Pak Med Assoc*, 65(3), 253-255.
14. Stav, K., Leibovici, D., Goren, E., Livshitz, A., Siegel, Y. I., Lindner, A., & Zisman, A. (2004). Adverse effects of cystoscopy and its impact on patients' quality of life and sexual performance. *Isr Med Assoc J*, 6(8), 474-8.
15. [The Prostate-Specific Antigen \(PSA\) Test: Q & A — National Cancer Institute](#).
16. Van der Starre, W. E., Van Nieuwkoop, C., Paltansing, S., Van't Wout, J. W., Groeneveld, G. H., Becker, M. J., ... & Leyten, E. M. (2011). Risk factors for fluoroquinolone-resistant *Escherichia coli* in adults with community-onset febrile urinary tract infection. *Journal of Antimicrobial Chemotherapy*, 66(3), 650-656.
17. Wasserman, N. F. (2006). Benign prostatic hyperplasia: a review and ultrasound classification. *Radiologic Clinics*, 44(5), 689-710.