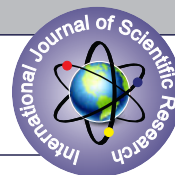


ASSOCIATION OF BOTHERSOME LOWER URINARY TRACT SYMPTOMS AND SEXUAL DYSFUNCTION IN MEN MORE THAN 50 YEARS OF AGE IN SOUTH INDIAN POPULATION AND EFFECT OF TADALAFIL MONOTHERAPY IN IMPROVEMENT OF SYMPTOMS IN SUCH PATIENTS



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ABSTRACT

Lower Urinary Tract Symptoms (LUTS) and sexual dysfunction are common in older men. This study was conducted to assess the association of sexual dysfunction in South Indian men over 50 years with bothersome LUTS (IPSS>8) not treated previously and to analyse the effect of Tadalafil 5 mg OD monotherapy in such patients. **Material And Methods:** Men over 50 years attending the Urology OPD were evaluated and examined after informed consent by the primary investigator. Detailed history was taken regarding complaints and personal habits and comorbid illnesses. Baseline demographic parameters were measured. They were divided into 2 groups. One group with patients with complaints of LUTS and another group with patients presenting with other complaints. Objective evaluation of LUTS and sexual dysfunction was performed to all the participants by the IPSS and IIEF - 5 (International Index of Erectile Function-5) questionnaires. Patients in the first group with bothersome LUTS (IPSS >8) and with Erectile dysfunction (IIEF -5 score <21) were treated with Oral PDE 5 inhibitor Tab. Tadalafil 5 mg OD monotherapy and followed up after 12 weeks with IPSS and IIEF -5 scores. **Results:** Both the LUTS and no LUTS groups comprised of 134 patients each. Baseline performance characteristics in both groups were comparable. The prevalence of sexual dysfunction amongst men with LUTS was 47% whereas it was 24% in men without LUTS. LUTS was the reason for sexual inactivity in a majority of the cases. Most of the components of the IIEF-5 were highly associated with LUTS. Tadalafil therapy (5mg- once daily) in the 63 patients with LUTS with sexual dysfunction resulted in clinically meaningful and statistically significant improvement in LUTS at 12 weeks.

KEYWORDS

Lower Urinary Tract symptoms, bothersome LUTS, Sexual dysfunction, Tadalafil,

INTRODUCTION

Lower urinary tract symptoms (LUTS) is related to the disorders of urinary flow. It is a collective term for several symptoms related to the lower urinary tract. The symptoms are divided into irritative, obstructive, or mixed. LUTS is associated with multiple pathologies consisting of either obstructive pathologies (benign prostate hyperplasia) or nonobstructive pathologies (autonomic bladder) or mixed. Studies have shown an increasing prevalence of LUTS as the age advances. A hospital-based study reported that more than 50% of men in the age group 61–70 years had LUTS, and the incidence of LUTS rises with age. Sexual dysfunction is also common in the aging male. Prevalence rate of Erectile dysfunction (ED) was found to be >50% in men aged 50 years and above. Recently published studies have suggested LUTS as a risk factor for the development of ED. Which aspect of LUTS (i.e. storage or voiding symptoms, nocturia, or the degree of bother) is responsible for this association is currently unknown. The association between lower urinary tract symptoms and erectile dysfunction has come into limelight recently because both diseases are not only highly prevalent but also occur in the same age group in males.

The mechanisms for the association of erectile dysfunction and Lower urinary tract symptoms is not yet defined. Various theories have been proposed which include the pathway involving the (NO-cGMP) Nitric oxide–cyclic guanosine monophosphate, Enhancement of (ROCK) RhoA–Rho-kinase signalling, Hyperactivity of the autonomic nervous system and Atherosclerosis of the pelvic vessels. Phosphodiesterase 5 inhibitors (PDE5Is) are believed to likely act mainly by increasing the concentration of nitric oxide (NO), which improves the activity of intracellular cyclic guanosine monophosphate (cGMP). This system is collectively called the NO-cGMP signaling pathway, and its activation could lead to the relaxation of smooth muscle in the detrusor, bladder neck, and prostate. PDE5Is also improve tissue oxygenation and blood supply and thereby plays a vital part in alleviating LUTS also.

With the growing interest in men's health, and increased problem of sexual dysfunction this has attracted some attention. LUTS is meticulously evaluated and treated by all, whereas urologists seldom look into sexual dysfunction in these men.

Presently immense attention has been focused on the same at the international level but there is a paucity in the Indian literature. With this in mind we designed a study to evaluate the association between LUTS and sexual dysfunction and to establish the benefit of PDE5 inhibitor monotherapy in such patients.

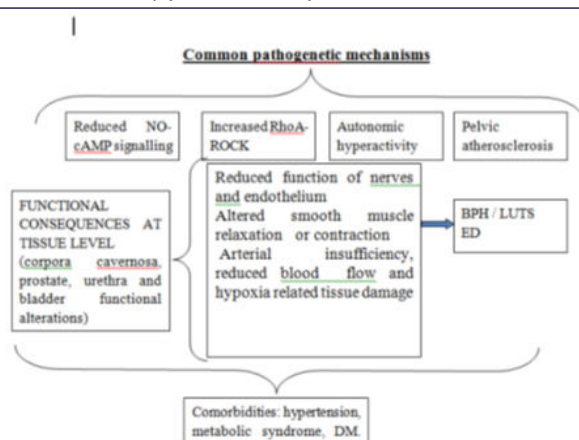


Figure 1: Diagram showing the various pathogenic mechanism

MATERIALS AND METHODS

This was a prospective observational study done at the Urology department of a tertiary care hospital, for a period of one year from August 2022 to July 2023. Men over 50 years of age attending the Urology out Patient department in consecutive fashion were included, evaluated and examined after informed consent by the primary investigator. Those who were on prior medical therapy for LUTS, patients with penile deformity, and pre-existing diagnosis of Sexual dysfunction and on treatment were excluded from the study. All base line data recorded the client's status about demography, socioeconomic status, smoking, alcohol intake, co morbidities (Type 2 DM, hypertension, Coronary artery disease, chronic renal failure) and medical history. They underwent a physical examination (height, weight, Body mass index, pulse rate, blood pressure, examination of the external genitalia and a digital rectal examination) and blood investigations was done for glucose, lipid profile, creatinine and serum testosterone. The participants were divided into 2 groups. One group with patients with complaints of LUTS and another group with patients presenting with other complaints. Objective evaluation of LUTS and sexual dysfunction was performed to all the participants by the IPSS and IIEF - 5 (International Index of Erectile Function-5) questionnaires. LUTS was classified as absent (IPSS of 0), mild (IPSS of 1 to 7), moderate (IPSS of 8 to 19), or severe (IPSS of 20 or more). ED was classified as suggested by Rosen et al into four categories: no ED (IIEF-5 score 22 to 25), mild ED (IIEF-5 score 17 to 21), moderate

ED (IIEF-5 score 8 to 16), and severe ED (IIEF-5 score less than 7). Serum testosterone, Blood sugars and Lipid profile were measured. Patients in the first group with bothersome LUTS and with Erectile dysfunction (IIEF -5 score <21) were treated with Oral PDE 5 inhibitor Tab. Tadalafil 5 mg OD monotherapy and followed up after 12 weeks with IPSS and IIEF -5 scores.

Statistical Analysis

These two groups were compared using Stata 18 software. Univariate analysis was done by 1) Chi square and 2) Two sample Mann – Whitney U test. Multivariate regression analysis using logistic regression for dichotomous variables was performed. A sample size of 134 was calculated for both the groups.

RESULTS AND DISCUSSION

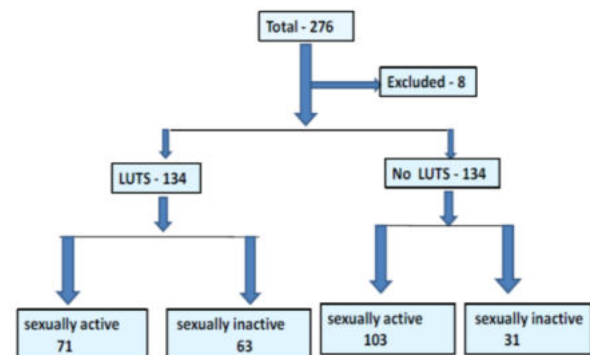


Figure 1: Consort diagram showing the distribution of groups

Out of 276 consecutive patients who attended the urology OPD and consented for the study, eight patients were excluded. There were 134 patients in both the groups. 71 patients were sexually active in the LUTS group whereas 103 were active in the no LUTS group. Both the groups were matched for their co morbid conditions (presence of both diabetes mellitus and hypertension, diabetes and hypertension alone or additions). 76% of men in the No LUTS group were sexually active when compared to 53% in the LUTS group and this was statistically significant ($p=0.001$). Lower urinary tract symptoms had a significant impact on the erectile function, sexual desire, intercourse satisfaction and also overall satisfaction of the IIEF- 5. A multivariate analysis was done to see the effect of LUTS, co morbidities (presence of diabetes mellitus, hypertension), hypercholesterolemia and serum testosterone effect on the erectile function. Lower urinary tract symptoms continued to be a significant factor affecting the erectile function. Though hypercholesterolemia was a significant factor affecting the erectile function, the multivariate analysis didn't confirm the same. S. testosterone less than 212ng/ml was taken as cut off value and an age adjusted multivariate analysis was taken to see the effect of testosterone on the erectile function. It was concluded that there was no significant effect of serum testosterone on the erectile function. Tadalafil therapy (5mg- once daily) was started in 63 patients with LUTS along with sexual dysfunction. Patients were followed up at 12 weeks and it resulted in clinically meaningful and statistically significant improvement in LUTS and also statistically significant improvement of IIEF-5 scores.

VARIABLE	TEST	MEAN	STANDARD DEVIATION	PERCENTAGE CHANGE
IPSS	BEFORE	25.3	4.01	54.1%
	AFTER	11.48	2.78	

DISCUSSION

Lower urinary tract symptoms (LUTS) and sexual dysfunction are common problems of the aging population. This is the first study evaluating south Indian patients with lower urinary tract symptoms and sexual dysfunction. The study showed that sexual activity is common in the aging men. When enquired they replied that there was an increased level of anxiety in association with these problems. Our study found a strong association between lower urinary tract system and sexual dysfunction. This was also showed by the study by Rosen et al and Diokno et al. We used standardised and validated scales for measurement of lower urinary tract symptoms and sexual dysfunction. These scales were administered by the principal investigator in all cases. The incidence of sexual dysfunction with lower urinary tract symptoms 47% in the present study. This is well comparable to the prevalence of 49% in the western literature by Rosen et al. But unlike

the study by Rosen which was multinational community based with questionnaires being mailed to the people, this was single institution based and the proforma were filled by the primary investigator. The present study showed that men without lower urinary tract symptoms were significantly more sexually active. It showed about 50% of male with LUTS were sexually inactive whereas only 24% of men without LUTS were sexually inactive, this was statistically significant ($p=0.001$). This could possibly be due to the lack of effective primary care in India and the consequent delayed management of LUTS. Earlier detection and optimization of the general health and lower urinary tract symptoms may significantly improve men's health in the country. Tadalafil therapy (5mg- once daily) resulted in clinically meaningful and statistically significant improvement in LUTS at the end of 12 weeks.

CONCLUSION

- The prevalence of sexual dysfunction amongst men (age >50 years) with LUTS was 47% whereas it was 24% in men without LUTS
- There is significant association of LUTS with sexual dysfunction in men >50 yrs,
- LUTS had a significant impact on the IIEF 5 scores.
- Severity of lower urinary tract symptoms correlated with the severity of erectile dysfunction.
- The mean testosterone in our study for males more than 50 years is 350ng/ml.
- LUTS was a significant reason for not being sexually active amongst the LUTS group.
- Tadalafil 5mg monotherapy in patients with LUTS with Sexual dysfunction significantly improved symptoms at the end of 12 weeks

REFERENCES

1. Rosen R, Altwein J, Boyle P, Kirby RS, Lukacs B, Meuleman E, et al. Lower urinary tract symptoms and male sexual dysfunction: the multinational survey of the aging male (MSAM-7). *Eur Urol*. 2003 Dec;44(6):637–49.
2. Andersson K-E, de Groat WC, McVary KT, Lue TF, Maggi M, Roehrborn CG, et al. Tadalafil for the treatment of lower urinary tract symptoms secondary to benign prostatic hyperplasia: pathophysiology and mechanism(s) of action. *NeuroUrol Urodyn*. 2011 Mar;30(3):292–301.
3. United States, Agency for Healthcare Research and Quality. 2005 national healthcare quality report. Rockville, Md.: U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality; 2005.
4. Kung H-C, Hoyert DL, Xu J, Murphy SL. Deaths: final data for 2005. *Natl Vital Stat Rep Cent Dis Control Prev Natl Cent Health Stat Natl Vital Stat Syst*. 2008 Apr 24;56(10):1–120.
5. Penson D, Krieger JN. Men's health: are we missing the big picture? *J Gen Intern Med*. 2001 Oct;16(10):717–8.
6. Thompson IM, Tangen CM, Goodman PJ, Probstfield JL, Moinpour CM, Coltman CA. Erectile dysfunction and subsequent cardiovascular disease. *JAMA J Am Med Assoc*. 2005 Dec 21;294(23):2996–3002.