

## The Effect of Silodosin in Patients with Benign Prostatic Hyperplasia: A Clinical Study of 100 Cases in India

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**Abstract :** Benign Prostatic Hyperplasia (BPH) Is A Chronic Condition Often Associated With Lower Urinary Tract Symptoms (LUTS) (Urinary Frequency, Urgency, A Weak And Intermittent Stream, Needing To Strain, A Sense Of Incomplete Emptying And Nocturia[1]). The Severity Of BPH-Related Luts Appears To Depend, At Least In Part, On Smooth Muscle Tone In The Prostate And Bladder Neck, Which Is Mediated By  $\alpha_1$ -Adrenoceptors. Silodosin, A New  $\alpha_1$ -Adr. Selective Antagonist, Has Been Reported To Be Effective For Both Storage And Voiding Symptoms In BPH Patients [2]. This Study Include Assessment Of The Efficacy Of Silodosin On American Urological Association Symptoms Score (AUA) [3], Quality Of Life (QoL) And Post Void Residual Urine And Side Effects Of Silodosin.. In This Study The Majority Of Patients Were Above 56 Years (85%). There Were 54.54% And 42.85% reductions in Obstructive & Irritative AUA-SS respectively (Total-50%) with Significant Improvement In QoL (51.11%) And In Post Void Residual Urine. The Major Adverse Effects were Retrograde Ejaculation(20%) & Upper Respiratory Tract Infection (15%). We Concluded That Silodosin is Effective For Both Storage And Voiding Symptoms In BPH Patients with Less Cardiovascular Side Effects.

**Keywords:** AUA Symptom Score, Benign Prostatic Hyperplasia, LUTS, Postvoid Urine, Quality Of Life Retrograde Ejaculation.

### I. Introduction

- Benign prostatic hyperplasia (BPH) is a common problem among men after the age of 40 years[4].
- BPH is chronic condition often associated with the lower urinary tract symptoms (LUTS) in males. Male LUTS can be classified into three categories, ie, voiding or obstructive (hesitancy, slow stream, intermittency, incomplete emptying), storage or irritative (frequency, urgency, nocturia, urge urinary incontinence) and postmicturition (postvoid dribbling)[1]. These conditions have a significant impact on overall quality of life.
- 50% of men with BPH complain of LUTS. The pathogenesis of BPH is still not well understood, but involves several complicated pathways, including inflammation, apoptosis, and cellular proliferation. Prostatic contraction is known to be the main contributor to LUTS in BPH, and is predominantly mediated by  $\alpha_{1A}$ -Adrenergic Receptor[5].
- Pharmacological therapy is the first line treatment for LUTS associated with BPH [6].
- Treatment for BPH aims to relieve two types of urinary tract obstruction:
  - -Mechanical urinary tract obstruction
  - Functional urinary tract obstruction
- The severity of BPH-related LUTS appears to depend, at least in part, on smooth muscle tone in the prostate and bladder neck, which is mediated by  $\alpha_1$ -adrenoceptors[7].
- Silodosin, a new  $\alpha_1$ -AR selective antagonist, has been reported to be effective for both storage and voiding symptoms in BPH patients[2].
- Kawabe et al (2006) (Level I) compared the safety and efficacy of silodosin 4mg, tamsulosin 0.2mg and placebo in a randomized, double-blind, and placebo-controlled multicenter trial[8].
- An International, Randomized, Double-Blind, Placebo- and Active- Controlled Clinical Trial Performed in Europe by Christopher R. Chapple et al, in 2010-2011. [9]
- Takao and colleagues evaluated the early efficacy of silodosin for treatment of 68 patients with LUTS/BPH.[10]

### II. Aims Of Study

- Assessment Of The Efficacy Of Silodosin On American Urological Association Symptoms Score (AUA) And Residual Urine Associated With BPH.
- Effect On Quality Of Life (QoL)

○ Assessment Of Side Effects Of Silodosin In Benign Prostatic Hyperplasia.

**III. Material & Methods**

**Design :** - Prospective study

**Setting :** - Dr.Sampurnanand Medical college & Associated Hospitals, Jodhpur (Raj.) INDIA

**Material :** 100 Cases of BPH were taken.

**Inclusion Criteria-** Men aged 50 years or older with LUTS with benign prostatic hyperplasia. Patients with BPH who have a total IPSS (AUA symptoms score of 8 or higher) and a quality of life (QOL) index of 3 or higher. Patients with Postvoid Residual Urine associated with benign prostatic hyperplasia.

**IV. Methodology**

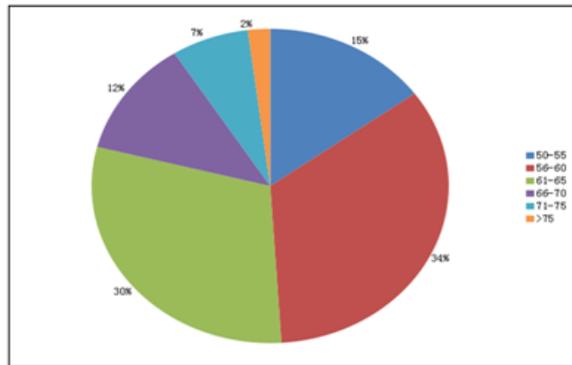
All patients in this study were prescribed silodosin 8 mg once daily with breakfast for 12 weeks.

The all patients were studied for Age relationship in BPH & thoroughly followed by American urological association BPH symptoms score index questionnaire and quality of life index due to urinary symptoms before starting the silodosin and after the treatment.

Adverse effect or events collected at each visit.

**V. Observations & Results**

AGE RELATIONSHIP IN B.P.H.



TITRATION SCHEDULE FOR SILODOSIN

Duration	Dose (mg/day)	Follow-up
4 week	8	Done on each visit with AUA symptoms score & Post void residual urine & adverse effects of drug
8 week	8	
12 week	8	

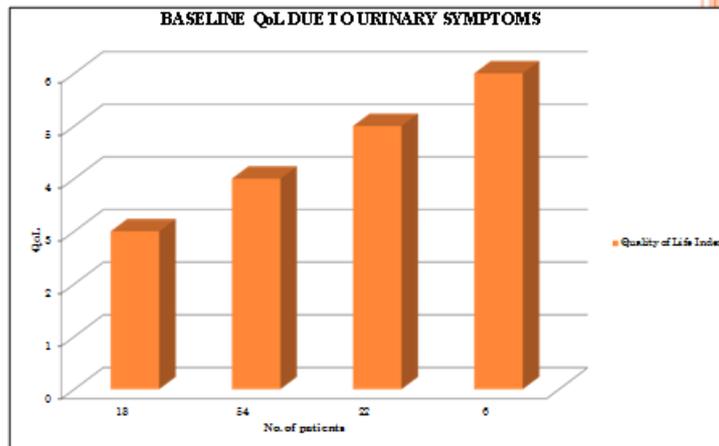
MEAN BASELINE A.U.A. SYMPTOMS SCORE (PRE TREATMENT)

No. of patients	20	50	15	15	Mean (SD)*
Obstructive score	10	11	9	14	11 (2.16)
Irritative score	6	7	5	10	7 (2.16)
Total AUA SS	16	18	14	24	18 (4.32)

BASELINE QUALITY OF LIFE (QoL) DUE TO URINARY SYMPTOMS

No. of patients	18	54	22	6	Mean (SD)*
Quality of Life Index (QoL)	3	4	5	6	4.5 (1.29)

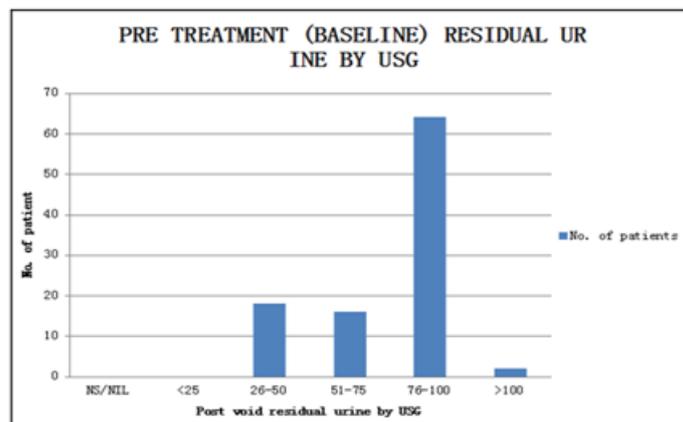
BASELINE QoL DUE TO URINARY SYMPTOMS



PRE TREATMENT (BASELINE) RESIDUAL URINE BY USG

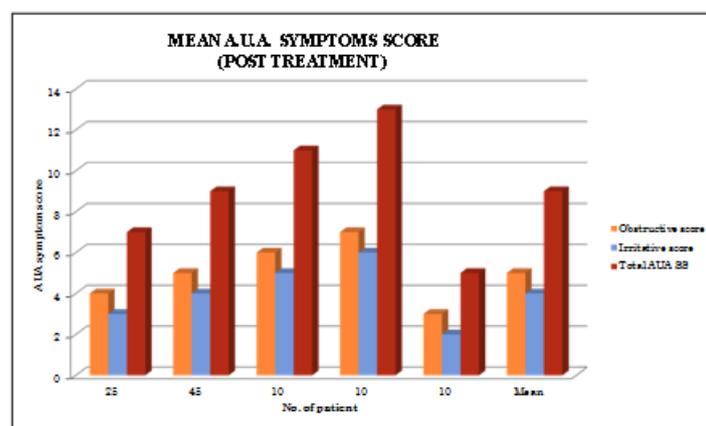
Post void residual urine (in ml)	No. of patients	Percentage (%)	Mean residual urine
NS/NIL	0	0	75
<25	0	0	75
26-50	18	18	75
51-75	16	16	75
76-100	64	64	75
>100	2	2	75

PRE TREATMENT (BASELINE) RESIDUAL URINE BY USG



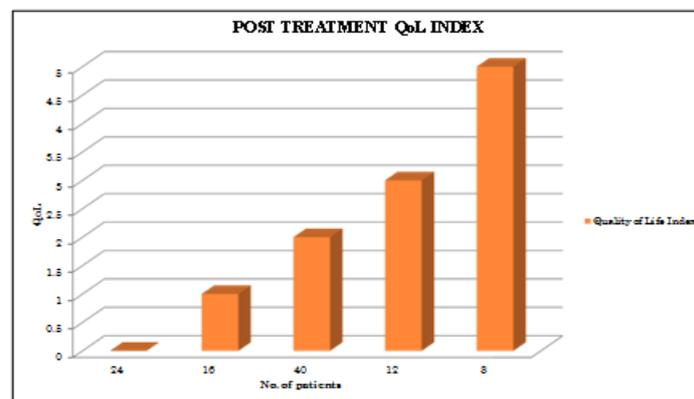
THE EFFECT OF SILODOSIN ON A.U.A. SYMPTOMS SCORE (POST TREATMENT)

No. of patients	25	45	10	10	10	Mean (SD)*
Obstructive score (mean)	4	5	6	7	3	5 (1.58)
Irritative score (mean)	3	4	5	6	2	4 (1.58)
Total AUA SS (mean)	7	9	11	13	5	9 (3.16)



THE EFFECT OF SILODOSIN ON QUALITY OF LIFE (QoL) DUE TO URINARY SYMPTOMS

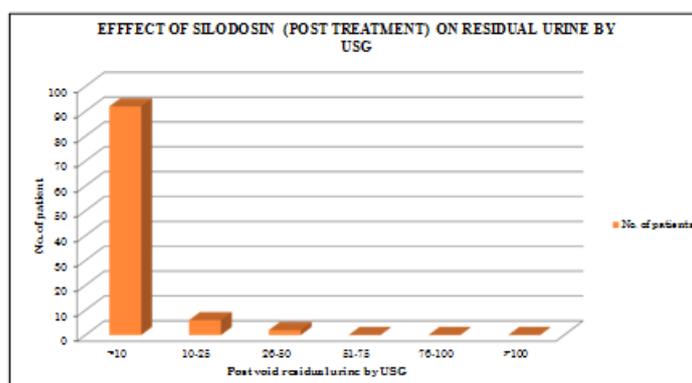
No. of patients	24	16	40	12	8	Mean (SD)*
Quality of Life Index	0	1	2	3	5	2.2 ( 1.92)



EFFECT OF SILODOSIN (POST TREATMENT) ON RESIDUAL URINE BY USG

Post void residual urine (in ml)	No. of patients	Percentage (%)	Mean residual urine
<10	92	92	Mean residual urine in 8 patients was 20ml
10-25	6	6	
26-50	2	2	
51-75	0	0	
76-100	0	0	
>100	0	0	

EFFECT OF SILODOSIN (POST TREATMENT) ON RESIDUAL URINE BY USG



## VI. Conclusion

The majority of BPH patients were above 56 years in age (85%) and only 15% patients were in age group of 50 to 55 years. The haematological and Biochemical indices were clinically normal in all the patient and there was no clinical significant change from baseline after silodosin. The dose titration schedule for silodosin was 8mg/day for 12 weeks. Dose was reduced to 4mg BD/day if side effects noticed. In this study 8mg/day silodosin was given in 100 patients. There were 54.54% reductions in obstructive AUA symptoms score (-6), 42.85% reduction in irritative AUA symptoms score (-3) from baseline after silodosin treatment. There were 50% reduction in total AUA symptoms score (-9) after silodosin in this study. There was significant improvement noticed in quality of life due to urinary symptoms. It was 51.11% reduced from baseline (-2.3). There was marked reduction in post void residual urine after silodosin treatment in BPH. Mean baseline residual urine in 100 patients were 75ml which reduced to 20ml and seen in only in 8 patients. There were 66.66% reduction in amount of post void residual urine and 92% reduction in number of patients. The major adverse effect Retrograde ejaculation were reported in 20% cases in our study after the treatment of silodosin. Other adverse effects like upper respiratory tract infection (15%), Thirst (11%), Loose stools (9%), Dizziness (4%) and Orthostatic Hypotension (2%) were also reported in our study. So, Silodosin is effective for both storage and voiding symptoms in BPH patients with less cardiovascular side effects[11].

## References

### Journal Papers:

- [1]. BPH and male LUTS, clinical evidence 2011; 08: 1801
- [2]. Rapaflo (silodosin) [Package insert]. Corona, CA: Watson Pharmaceuticals, Inc; 2009
- [3]. AUA Practice Guidelines Committee on management of BPH (2003). Chapter 1: Diagnosis and treatment J Urol. 2003; 170:530–547.
- [4]. Silodosin in the treatment of BPH by Maxime Rossi, Thierry R., Drug design, development and therapy 2010-4: 291-297.
- [5]. Descazeaud A, Rubin MA, et al. BPH gene expression profile associated to prostate volume. Diagn Mol Pathol. 2008; 17:207–213.
- [6]. Arnold EP. Tamsulosin in men with confirmed bladder outlet obstruction: a clinical and urodynamic analysis from a single center in New Zealand. BJU Int. 2001; 87:24–31.
- [7]. Schwinn DA, Roehrborn CG.  $\alpha$ 1-AR subtypes and LUTS. Int J Urol. 2008;15:139–193.

- [8]. Kawabe K, Yoshida M, Homma Y, for the Silodosin Clinical Study Group. Silodosin, a new alpha1A-adrenoceptor-selective antagonist for treating benign prostatic hyperplasia: results of a phase III randomized, placebo-controlled, double-blind study in Japanese men. *BJU Int.* 2006; 98:1019–1024. *J Urol.* 2009; 181(6):2634–2640.
- [9]. Chapple CR, Montorsi F, Tammela TLJ et al (2011) Silodosin therapy for LUTS in men with suspected benign prostatic hyperplasia: results of randomized, double-blind, placebo-and active-controlled clinical trial performed in Europe. *Eur Uro* 3:342–352
- [10]. Takao T, Tsujimura A, Kiuchi H, et al. Early efficacy of silodosin in patients with lower urinary tract symptoms suggestive of benign prostatic hyperplasia. *Int J Urol.* 2008; 15(11):992–996.
- [11]. Marks LS, Gittelman MC, Hill LA, et al. Silodosin in the treatment of the signs and symptoms of benign prostatic hyperplasia: A 9-month, open-label extension study. *Urology.* 2009; 74:1318–1322.