



Comparison of Outcome of Unilateral Modified Bladder Neck Incision and Tamsulosin Therapy in the Treatment of Primary Bladder Neck Obstruction in Young Men

Mohammad Saiful Islam¹, Sudip Das Gupta²

Article information

Received: 15-04-2022

Accepted: 11-05-2022

Cite this article:

Islam MS, Gupta SD. Comparison of Outcome of Unilateral Modified Bladder Neck Incision and Tamsulosin Therapy in the Treatment of Primary Bladder Neck Obstruction in young men. *Sir Salimullah Med Coll J 2022; 30: 155-160*

Key words:

Bladder Neck Incision, Tamsulosin, Primary Bladder Neck Obstruction

Abstract:

Background: Primary bladder neck obstruction (PBNO) is a condition in which the bladder neck does not open appropriately or completely during voiding. Symptoms caused by primary bladder neck obstruction includes storage symptoms (Frequency, Urgency, Urge incontinence, nocturia) and voiding Symptoms (Poor urinary stream, hesitancy, incomplete emptying of bladder).

Objective: To compare outcome of unilateral modified bladder neck incision with tamsulosin therapy in primary bladder neck obstruction in young men.

Materials and Methods: This hospital based quasi-experimental study was conducted in the department of urology, Sir Salimullah Medical College Mitford Hospital. Patients with the diagnosis of primary bladder neck obstruction included in this study. Total 44 cases were included. Among them 18 were treated with unilateral modified BNI (Group A) and 26 were treated with tamsulosin therapy (Group B).

Results: The mean age was found 31.11 ± 4.77 years in group A and 34.15 ± 5.42 years in group B. At 3rd and 6th month mean uroflowmetry (Q_{max}) was statistically significant ($p < 0.05$) when compared between two groups. However, in group A and group B uroflowmetry (Q_{max}) was significantly increased when compared initial vs 3rd month and initial vs 6th month respectively. The study observed that after 3rd month following the treatment the retrograde ejaculation was not found in group A and 1(3.8%) found in group B. At 6th month retrograde ejaculation was not also found in group A and found 2(7.7%) in group B. At 3rd and 6th month retrograde ejaculation was not statistically significant ($p > 0.05$).

Conclusion: The outcome of unilateral modified BNI is better than tamsulosin therapy. All others adverse effect of both medical and surgical treatment was mild and transient that was acceptable in clinical practice.

Introduction:

Bladder outlet obstruction (BOO) can lead to renal failure, and the cause of obstruction varies among different age groups. Primary bladder neck obstruction (PBNO) is a urological condition affecting both sex in which the bladder neck fails to open adequately during voiding, resulting in obstruction of urinary flow in the absence of

anatomic obstruction, such as benign prostatic hypertrophy (BPH) in men.¹ The incidence of PBNO in female patients with obstructive symptoms and in male patients younger than 55 years of age with chronic voiding dysfunction is reported to be between 4.6–16% and 33–54%, respectively.² Treatments for PBNO varies from watchful waiting to medical therapy by α -

1. Registrar, Department of Urology, NITOR, Dhaka

2. Professor and Head of Urology, Sir Salimullah Medical College

Address of Correspondence: Prof. Dr. Sudip Das Gupta, Professor and Head of Urology, Sir Salimullah Medical College, Dhaka. E-mail: dasguptasudip70@gmail.com ORCID: 0000-0002-7382-521X

adrenergic blockers like prazosin 2 mg twice daily, terazosin 2 mg daily, doxazosin 4 mg daily, tamsulosin 0.4 mg daily. Phenoxybenzamine can also be used.³ Primary bladder neck obstruction can be treated surgically with unilateral or bilateral transurethral incision of the bladder neck. The main concern with bladder neck incision and tamsulosin is the development of the retrograde ejaculation. For this, transurethral incision of the bladder neck (TIBN) is performed with modification and unilaterally. Voiding function is improved and preserve antegrade ejaculation.⁴ The aim of the study is to compare the outcome, efficacy and compliance of patient regarding management in primary bladder neck obstruction by unilateral modified bladder neck incision and -adrenergic blocker; tamsulosin.

Materials and Methods:

A quasi experimental study was conducted in urology department of Sir Salimullah Medical College Mitford Hospital, Dhaka during January' 2017 to December' 2018. Total 44 population includes the young men aged (18-40) years who attended the department of urology, SSMCMH, Dhaka with primary bladder neck obstruction. Patients were eligible for the study who were able to give a written consent before starting the treatment & also able to complete international prostate symptom score (IPSS). Patients were recruited and divided into two groups; unilateral modified BNI group and tamsulosin therapy group. First participant was selected by lottery method, then rest of the participant enrolled alternatively dividing into two groups. Unilateral Modified BNI (Group A) was experimental group and tamsulosin therapy (Group B) was control group. Due to limitation of time and unavailability of patients 52 patients were allocated. Among them 8 patients were dropped out. Finally, 18 patients for unilateral modified BNI group and 26 patients for tamsulosin therapy group were selected for the study. Under spinal anaesthesia urethro-cystoscopy followed by unilateral incision of the bladder neck at the level of 5' o clock or 7' o clock position starting from near the ureteral orifice and carried down wards to about 0.5-1.0 cm proximal to verumontanum was done in group A patients. On the other hand capsule tamsulosin 0.4 mg was given orally once daily at night in group B patients. The patients were followed up in schedule visit at

the end of 3 and 6 months of treatment to record IPS score, stream of urine, maximum flow rate in uroflowmetry and post voidal residue in data sheet. Adverse effects of the treatment preferably retrograde ejaculation were also recorded periodically with their severity. The mobile/ telephone number was taken from each study population to ensure schedule visit and follow up. Data collection was completed in meticulous conduct of study with at least 6 months break free follow up. Data processing and statistical analysis were done by using Statistical Package for Social Sciences version 23.0 for Windows (SPSS Inc., Chicago, Illinois, USA). Chi-Square test and Fisher's exact test was used to analyze the categorical variables. Unpaired t-test and paired t-test was used to analyze the continuous variables. Statistically significant P values were <0.05.

Results:

Majority patients belonged to age 31-40 years in both groups, which was 13(72.2%) in group A and 17(65.4%) in group B. The mean age was found 31.11±4.77 years in group A and 34.15±5.42 years in group B. The mean age difference was not statistically significant ($p>0.05$) (Table-I). Initially mean IPSS was found 20.35±2.44 in group A and 18.71±3.83 in group B, which was not statistically significant ($p>0.05$) between two groups. At 3rd month mean IPSS was 6.42±1.93 in group A and 12.61±1.97 in group B. At 6th month mean IPSS was 5.34±0.79 in group A and 9.57±2.15 in group B. At 3rd and 6th month mean IPSS was statistically significant ($p<0.05$) when compared between two groups. However, in group A and group B mean IPSS was significantly decreased when compared initial vs 3rd month and initial vs 6th month respectively (Table-II). Initially mean Q_{max} was found 11.76±1.15 ml/sec in group A and 12.32±1.41 ml/sec in group B, which was not statistically significant ($p>0.05$) between two groups. At 3rd month mean Q_{max} in uroflowmetry was 20.75±1.60 ml/sec in group A and 15.42±1.98 ml/sec in group B. At 6th month mean Q_{max} in uroflowmetry was 21.57±1.44 ml/sec in group A and 16.26±6.59 ml/sec in group B. At 3rd and 6th month mean Q_{max} was statistically significant ($p<0.05$) when compared between two groups. However, in group A and group B Q_{max} in uroflowmetry was significantly increased when compared initial vs 3rd month and initial vs 6th month respectively (Figure-I). Initially

poor flow of urine during micturition was found 18(100.0%) in group A and 26(100.0%) in group B. At 3rd month 15(83.3%) patients in group A and 14(53.8%) in group B patients were satisfied with the stream of urine during micturition. At 6th month 16(88.9%) patients in group A and 16(61.5%) patients in group B patients were satisfied with the stream of urine during micturition. At 3rd and 6th month the stream of urine during micturition was statistically significant (p<0.05) (Table-III). Initially mean PVR was found 89.61±18.37 ml in group A and 74.69±41.74 ml in group B, which was not statistically significant (p>0.05) between two groups. At 3rd month mean PVR was 34.23±10.20 ml in group A and 47.03±21.76 ml in group B. At 6th month mean PVR was 26.88±8.62 ml in group A and 38.07±17.45 ml in group B. At 3rd and 6th month mean PVR was statistically significant (p<0.05) when compared between two groups. However, in group A and group B PVR was significantly decreased when compared initial vs 3rd month and initial vs 6th month respectively

(Table-IV). At 3rd month retrograde ejaculation was not found in group A and 1(3.8%) found in group B. At 6th month retrograde ejaculation was not found in group A and 2(7.7%) in group B. At 3rd and 6th month retrograde ejaculation was not statistically significant (p>0.05) (Table-V).

Table I. Distribution of the study patients by age (n=44)

Age (years)	Group A) (n=18		Group B (n=26)		P value
	n	%	n	%	
≤20	0	0.0	1	3.8	
21-30	5	27.8	8	30.8	
31-40	13	72.2	17	65.4	
Mean±SD	33.11 ±4.77		34.15 ±5.42		0.515 ^{ns}

Group B =Tamsulosin therapy
 Group A = Unilateral Modified BNI
 ns=not significant
 P value reached from unpaired t-test

Table II. Distribution of the study patients by IPS score (n=44)

IPS score	Initial	At 3 rd month	At 6 th month
	Mean ±SD	Mean ±SD	Mean ±SD
Group A	20.35 ±2.44	6.42 ±1.93	5.34 ±0.79
Group B	18.71 ±3.83	12.61 ±1.97	9.57 ±2.15
P value	0.116 ^{ns}	0.001 ^s	0.001 ^s

Group B =Tamsulosin therapy
 Group A = Unilateral Modified BNI
 s-significant; ns=not significant
 P value reached from unpaired t-test

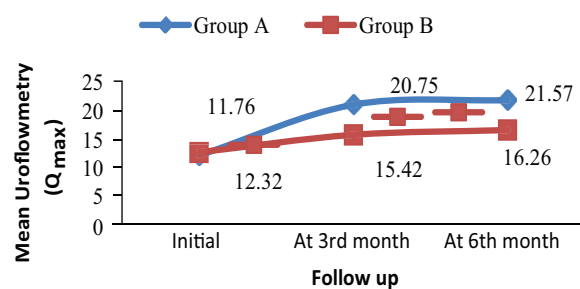


Fig-1: Distribution of the study patients by uroflowmetry (Q_{max}) (n=44)

Table III. Distribution of the study patients by stream of urine during micturition (n=44)

Stream of urine during micturition	Initial			At 3 rd month			At 6 th month		
	Group A (n=18)	Group B (n=26)	P value	Group A (n=18)	Group B (n=26)	P value	Group A (n=18)	Group B (n=26)	P value
Satisfied	0	0	-	15	14	0.042 ^s	16	16	0.046 ^s
Poor	18	26		3	12		2	10	
Total	18	26		18	26		18	26	

Group B =Tamsulosin therapy
 Group A = Unilateral Modified BNI
 s= significant; ns=not significant
 P value reached from Fisher's exact

Table IV: Distribution of the study patients by post voidal residue (PVR) (n=44)

Post voidal residue	Initial	At 3 rd month	At 6 th month
	Mean \pm SD (PVR) (ml)	Mean \pm SD (PVR) (ml)	Mean \pm SD (PVR) (ml)
Group A	89.61 \pm 18.37	34.23 \pm 10.20	26.88 \pm 8.62
Group B	74.69 \pm 41.74	47.03 \pm 21.76	38.07 \pm 17.45
p value	0.116 ^{ns}	0.001 ^s	0.001 ^s

Group B =Tamsulosin therapy

Group A = Unilateral Modified BNI

s= significant; ns=not significant

P value reached from unpaired t-test

Table V: Distribution of the study patients by retrograde ejaculation effect (n=44)

Retrograde ejaculation	Group A(n=18)		Group B(n=26)		P value
	n	%	n	%	
At 3 rd month					
Present	0	0	1	3.8	0.591 ^{ns}
Absent	18	100	25	96.2	
At 6 th month					
Present	0	0	2	7.7	0.344 ^{ns}
Absent	18	100	24	92.3	

Group A = Unilateral Modified BNI

Group B =Tamsulosin therapy

ns=not significant

P value reached from Fisher's exact test

Discussion:

In this study the majority patients belonged to age 31-40 years in both groups, which was 13(72.2%) in group A and 17(65.4%) in group B. The mean age was found 31.11 \pm 4.77 years in group A and 34.15 \pm 5.42 years in group B. The mean age difference was not statistically significant (p>0.05). In a study done by Nitti⁵ reported that the mean age was 36 years that is statistically similar with the present study. Wang et al.⁶ study also observed mean age was 37.5 \pm 7.8 years that was also within the limit.

Present study observed initially mean IPSS was found 20.35 \pm 2.44 in group A and 18.71 \pm 3.83 in group B, which was not statistically significant (p>0.05) between two groups. At 3rd month mean IPSS was 6.42 \pm 1.93 in group A and 12.61 \pm 1.97 in group B. At 6th month mean IPSS was 5.34 \pm 0.79 in group A and 9.57 \pm 2.15 in group B. At 3rd and 6th

month mean IPSS was statistically significant (p<0.05) when compared between two groups. However, in group A and group B mean IPSS was significantly decreased when compared initial vs 3rd month and initial vs 6th month respectively. Ackerman & Rodriguez⁷ has found the International Prostate Symptom Score (IPSS) to be sufficient for this evaluation and found 18.1 \pm 5.3 (Range, 6-35) that was similar and statistically significant with the present study. They also assessed quality of life score that also provides similar reflexion with the current study. Wang et al.⁶ study showed that the IPSS decreased significantly in unilateral modified transurethral incision of bladder neck preserving prostatic tissue 1.0 cm proximal to verumontanum, that improved the voiding function significantly. Nitti⁵ study observed that 58% of subjects had a reduction in International Prostate Symptom Score (IPSS) of greater than 50% consistent with the present study.

Current study showed initially mean Q_{max} was found 11.76 ± 1.15 ml/sec in group A and 12.32 ± 1.41 ml/sec in group B, which was not statistically significant ($p > 0.05$) between two groups. At 3rd month mean Q_{max} in uroflowmetry was 20.75 ± 1.60 ml/sec in group A and 15.42 ± 1.98 ml/sec in group B. At 6th month mean Q_{max} in uroflowmetry was 21.57 ± 1.44 ml/sec in group A and 16.26 ± 6.59 ml/sec in group B. At 3rd and 6th month mean Q_{max} was statistically significant ($p < 0.05$) when compared between two groups. However, in group A and group B Q_{max} in uroflowmetry was significantly increased when compared initial vs 3rd month and initial vs 6th month respectively. Ackerman & Rodriguez⁷ study revealed on office-based measurements that PBNO decreased peak urinary flow rate (Q_{max}) less than 15 mL/s that improved in measure. The findings are similar with the present study. Wang et al.⁶ study observed biofeedback relaxation of pelvic floor by alpha blockade increased peak uroflow rate, Q_{max} (11.9 ± 4.1 ml/s to 16.7 ± 6.1 ml/s, $p < 0.05$) that is consistent with the present study. Nitti⁷ study showed the mean Q_{max} increased from 9.2 mL/s to 15.7 mL/s that was also significant with this study.

Present study showed initially poor flow of urine during micturition was found 18(100.0%) in group A and 26(100.0%) in group B. At 3rd month 15(83.3%) patients in group A and 14(53.8%) in group B patients were satisfied with the stream of urine during micturition. At 6th month 16(88.9%) patients in group A and 16(61.5%) patients in group B patients were satisfied with stream of urine during micturition. At 3rd and 6th month the stream of urine during micturition was statistically significant ($p < 0.05$). Ackerman & Rodriguez⁷ study showed that 90% patients observed good result in PBNO following unilateral modified BNI. This data was consistent with the current study. Schafer et al.⁸ study observed urethral catheter can also alter or suppress the micturition reflex in 5% to 11% of patients. So, after removal of catheter flow of urine may alter from the original flow. However the flow regain subsequently in majority of the patients.

In this study initially mean PVR was found 89.61 ± 18.37 ml in group A and 74.69 ± 41.74 ml in group B, which was not statistically significant

($p > 0.05$) between two groups. At 3rd month mean PVR was 34.23 ± 10.20 ml in group A and 47.03 ± 21.76 ml in group B. At 6th month mean PVR was 26.88 ± 8.62 ml in group A and 38.07 ± 17.45 ml in group B. At 3rd and 6th month mean PVR was statistically significant ($p < 0.05$) when compared between two groups. However, in group A and group B PVR was significantly decreased when compared initial vs 3rd month and initial vs 6th month respectively. Ackerman & Rodriguez⁷ study observed patients infrequently have elevated PVR (Average 91 mL) in bladder neck obstruction consistent with the present study. Nitti⁵ study observed that PVR decreasing from 256 mL to 40 mL in TUBNI that was statistically significant with the current study.

Present study showed at 3rd month retrograde ejaculation was not found in group A and 1(3.8%) found in group B. At 6th month retrograde ejaculation was not found in group A and 2(7.7%) in group B. At 3rd and 6th month retrograde ejaculation was not statistically significant ($p > 0.05$). Lepor⁹ and Wilt et al.¹⁰ observed abnormal ejaculation reported between 4% to 26% in tamsulosin therapy depending on dose and study duration. American Urological Association Practice Guidelines Committee¹¹ reported the incidences of abnormal ejaculation related to the use of nonselective β -blockers, such as doxazosin, terazosin, or alfuzosin, generally were lower than 1.5%. Nitti⁵ study observed that unilateral modification of transurethral incision by preserving a portion of the supramontanal tissue during surgery to improve voiding function and preserve antegrade ejaculation. The study is consistent with the current study.

Conclusion:

In conclusion the potential outcome and effect of unilateral modified BNI with tamsulosin therapy for the treatment of primary bladder neck obstruction was observed in this study. Flow & stream of urine significantly improved in unilateral modified BNI than tamsulosin therapy. The side effects like retrograde ejaculation was absent in unilateral modified BNI operation.

Funding: No funding sources.

Conflict of Interest: None

Ethical approvals: This study was approved by institutional ethics committee of SSMC.

References:

1. Coguplugil AE, Topuz B, Ebiloglu T, Zor M, Gurdal M. Primary bladder neck obstruction is one of the rare causes for renal failure in young adult males. *African Journal of Urology*. 2021;27(1):1-5.
2. Sussman RD, Drain A, Brucker BM. Primary bladder neck obstruction. *Reviews in urology*. 2019;21(2-3):53.
3. Nitti VW, Lefkowitz G, Ficazzola M, Dixon CM. Lower urinary tract symptoms in young men: videourodynamic findings and correlation with noninvasive measures. *The Journal of urology*. 2002;168(1):135-8.
4. Yang S, Tsai YC, Chen JJ, Peng CH, Hsieh JH, Wang CC. Modified transurethral incision of the bladder neck treating primary bladder neck obstruction in young men: a method to improve voiding function and to preserve antegrade ejaculation. *Urologia internationalis*. 2008;80(1):26-30.
5. Nitti VW. Primary bladder neck obstruction in men and women. *Reviews in urology*. 2005;7(Suppl 8):S12.
6. Wang CC, Dei Yang SS, Chen YT, Hsieh JH. Videourodynamics identifies the causes of young men with lower urinary tract symptoms and low uroflow. *European urology*. 2003;43(4):386-90.
7. Ackerman AL, Rodriguez LV. Evaluation of Primary Bladder Neck Obstruction in Men. *Current Bladder Dysfunction Reports*. 2012;7(3):235-41.
8. Schäfer W, Abrams P, Liao L, Mattiasson A, Pesce F, Spangberg A, Sterling AM, Zinner NR, Kerrebroeck PV. Good urodynamic practices: uroflowmetry, filling cystometry, and pressure flow studies. *Neurourology and Urodynamics: Official Journal of the International Continence Society*. 2002;21(3):261-74.
9. Lepor H. Long-term evaluation of tamsulosin in benign prostatic hyperplasia: placebo-controlled, double-blind extension of phase III trial. *Urology*. 1998;51(6):901-6.
10. Wilt TJ, Howe RW, Rutks IR, MacDonald R. Terazosin for benign prostatic hyperplasia. *Cochrane Database Syst Rev*. 2003.
11. American Urological Association Practice Guidelines Committee. Results of the Treatment Outcomes Analyses. In: *Guideline on the Management of Benign Prostatic Hyperplasia (BPH)*. American Urological Association Education and Research 2006; 1-142.