



CODEN [USA]: IAJPBB

ISSN : 2349-7750

## INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187

<http://doi.org/10.5281/zenodo.5084847>Online at: <http://www.iajps.com>

Research Article

### TO DETERMINE THE MEAN CHANGE IN ERECTILE FUNCTION SCORE BEFORE AND AFTER URETHROPLASTY IN PELVIC FRACTURE URETHRAL INJURIES (PFUIs) PATIENTS

<sup>1</sup>Dr.Shezad, <sup>2</sup>Dr.Mehran, <sup>3</sup>Dr.Sunil Kumar, <sup>4</sup>Dr.Imran Malik, <sup>5</sup>Dr.Ahmed ullah,  
<sup>6</sup>Dr.Farag Mohsen Saleh Abo Ali, <sup>7</sup>Dr.Mohsin Mustafa Memon, <sup>8</sup>Prof.Manzoor Husain

<sup>1</sup>Urologist in Syed Abdullah Shah Institute Of Medical Sciences Sehwan.

<sup>2</sup>Urologist in Syed Abdullah Shah Institute Of Medical Sciences Sehwan

<sup>3</sup>Assistant Professor in Urology JMC Khuzdar Balochistan

<sup>4</sup>Consultant Urologist FCPS

<sup>5</sup>Consultant Urologist FCPS

<sup>6</sup>Lecturer in Urology SIUT Karachi

<sup>7</sup>Lecturer in Urology SIUT Karachi

<sup>8</sup>Prof of Urology SIUT Karachi

Article Received: May 2021

Accepted: June 2021

Published: July 2021

**Abstract:**

**Introduction:** Pelvic fracture urethral injuries (PFUIs) often result from high velocity injuries that are associated with disruption of the pelvic ring. Delayed open urethroplasty is a highly effective and durable approach for treating PFUIs. One of the more concerning complications of urethroplasty is postoperative ED. Erectile dysfunction (ED) is thought to be vasculogenic, neurogenic, corporal and psychogenic in etiology and resulting from fracture itself. Pelvic fracture with or without urethral injury have been linked to ED with an incidence varying from 18% to 72%. **Objective:** To determine the mean change in erectile function score before and after urethroplasty in pelvic fracture urethral injuries (PFUIs) patients. **Study Design :** Quasi experimental Study. **Setting:** Department of Urology, Sindh Institute of Urology and Transplantation, Karachi. **Duration of Study:** 24-Aug-2019 to 23-Feb-2020. **Patients and Methods:** A total number of 66 patients with diagnosis of PFUIs having age 20 to 60 years were included in this study. Anastomotic urethroplasty was done in all patients by one consultant urologist. Erectile function was evaluated via a translated and culturally adapted Urdu version of the International Index of Erectile Function (IIEF - 5) questionnaire. For each patient the questionnaire was filled twice before surgery and 3 months after surgery based on their sexual activity condition. Overall IIEF score before and after urethroplasty was calculated to see mean change in IIEF score. **Results:** Mean age of patients was 41.13±11.10 years. Mean body mass index (BMI) of patients was 24.41±3.52 Kg/m<sup>2</sup>. Mean duration of symptoms of PFUIs was 8.74±3.5 months. Mean duration of marriage was 16.96±8.86 years. On comparison of before surgery and after surgery IIEF score, before surgery IIEF score was 20.10±3.47 and after surgery was 19.80±3.35 (p-value 0.119). Mean IIEF score was 19.82±3.33 in patients having age ≤40 years versus 19.78±3.42 in patients having age >40 years (p-value 0.04). **Conclusion:** There is no effect of surgery on erectile function in patients of post-fracture urethral injuries (PFUIs). We found significant effect of age on erectile function after surgery in these patients. **Keywords:** Pelvic fracture urethral injuries (PFUIs), urethroplasty, erectile dysfunction,

**Corresponding author:****Dr. Shezad,**

Urologist in Syed Abdullah Shah Institute Of Medical Sciences Sehwan.

QR code



Please cite this article in press Shezad et al., *To Determine The Mean Change In Erectile Function Score Before And After Urethroplasty In Pelvic Fracture Urethral Injuries (PFUIs) Patients...*, *Indo Am. J. P. Sci*, 2021; 08(07).

**INTRODUCTION:**

Pelvic fracture urethral injuries (PFUIs) often result from high velocity injuries that are associated with disruption of the pelvic ring.<sup>1</sup> Urethral injuries associated with Pelvic fracture were initially termed pelvic fracture urethral distraction defects (PFUDD) by Turner–Warwick based on the assumption that they were usually complete injuries. However, the international consultation on urological Diseases recommended replacing pelvic fracture urethral distraction defect with PFUI, because these injuries are not complete disruptions in most cases and that, even when they are complete, they are not necessarily distracted.<sup>1</sup>

Erectile dysfunction (ED) is thought to be vasculogenic, neurogenic, corporal and psychogenic in etiology and resulting from fracture itself.<sup>2</sup>

Delayed open urethroplasty is a highly effective and durable approach for treating PFUIs. One of the more concerning complications of urethroplasty is postoperative ED. The theoretical risk of ED comes from the close relationship of the cavernous nerves with the proximal urethra when they emerge from the pelvic floor and this risk is supported by reports of ED after anterior and posterior urethroplasty.<sup>3,4</sup>

Pelvic fracture with or without urethral injury have been linked to ED with an incidence varying from 18% to 72%.<sup>5-6</sup>

In a study Hosseini J et al. reported effect of urethroplasty on erectile function, showed IIEF 5 score before surgery  $13.45 \pm 5.43$  and 3 months after surgery  $13.12 \pm 5.38$ .<sup>9</sup>

In another study Xie H et al. determined the effect on erectile function after urethroplasty, showed IIEF 5

score before surgery  $16.57 \pm 7.98$  and 3 months after surgery  $11.52 \pm 6.43$ .<sup>10</sup>

The purpose of the proposed study is to determine the effect on erectile function after urethroplasty in PFUIs patients by using IIEF 5 scoring questionnaire before anastomotic urethroplasty and at 3 months after surgery. As there is controversy regarding effect of urethroplasty on EF in available research data, some studies said that there is negative effect of urethroplasty on EF and some studies said that there is no significant effect, but here we observed in our setting there is significant effect of urethroplasty on EF, but currently no published data available, so we want to do study, because erectile dysfunction is one of most serious problems of male population which affect adversely the quality of life. So by knowing the mean change in EF score before and after urethroplasty among the patients of PFUI, we will be able to counsel the patients in best way and early penile rehabilitation to be started.

**OBJECTIVE:**

To determine the mean change in erectile function score before and after urethroplasty in pelvic fracture urethral injuries (PFUIs) patients.

**MATERIAL AND METHODS:**

**Study Design** : Quasi experimental Study.

**Setting:** The study was completed at department of Urology, Sindh Institute of Urology and Transplantation, Karachi.

**Duration of Study:** 24-Aug-2019 to 23-Feb-2020.

**Sample Size:**

Sample size for this study is calculated using epi-tools software for sample size calculation of single proportion.

Sample size minimum 33 patients.

Xie H et al. before surgery IIEF score 16.57 and 3 months after surgery 11.52.<sup>10</sup>

Confidence interval (2-sided) 95%  
Power 80%  
Ratio of sample size (group 2/Group 1) 1

	Group 1	Group 2	Difference
Mean	16.57	11.52	5.05
Standard deviation	7.98	6.42	
Sample size Group 1	33		
Sample size Group 2	33		
Total sample size	66		

**SAMPLING TECHNAQUE:** Non probability, Consecutive sampling

**SAMPLE SELECTION:**

**Inclusion criteria:**

- Patients with diagnosis of PFUIs having age 20 to 60 years.
- All married males were included
- ASA 1

**Exclusion Criteria:**

- Known case of uncontrolled Diabetes mellitus and Hypertension

**DATA COLLECTION PROCEDURE:**

After approval of synopsis, patients presenting in our OPD demographic data was taken and were diagnosed PFUI on history and X-ray urethrogram. A written informed consent was taken from all patients. A specially designed Proforma was used to collect all the necessary information (See Annexure-I).

Anastomotic urethroplasty was done in all patients by one consultant urologist having 3 years post-fellowship experience.

Erectile function was evaluated via a translated and culturally adapted Urdu version of the International Index of Erectile Function (IIEF - 5) questionnaire, For each patient the questionnaire was filled twice before surgery and 3 months after surgery based on their sexual activity condition. After surgery patient were discharged once stable and were called for followup after 3 weeks, after removing catheter, the patients were called again at 3 months to fulfill the same IIEF questionnaire. Overall IIEF score before and after urethroplasty was calculated to see mean change in IIEF score.

**DATA ANALYSIS PROCEDURE:**

Data was entered and analyzed using SPSS version 18. Age, duration of marriage, duration of symptoms,

height, weight, BMI, IIEF score before and after urethroplasty were presented as mean and standard deviation. Erectile dysfunction was presented as frequency and percentage. Paired sample t test was applied to compare mean IIEF score before and after surgery. Effect modifiers such as age, duration of marriage, duration of symptoms, and BMI were controlled through stratification. Post-stratification independent sample t-test was applied to determine the association of these effect modifiers with post-surgery IIEF score. P-value  $\leq 0.05$  was considered significant difference.

**RESULTS:**

There were a total number of 66 patients in this study. Mean age of patients was  $41.13 \pm 11.10$  years, while the age range was 21-60 years (Table 1).

Mean body mass index (BMI) of patients was  $24.41 \pm 3.52$  Kg/m<sup>2</sup>. Minimum BMI was 18.49 Kg/m<sup>2</sup> and maximum BMI was 32.20 Kg/m<sup>2</sup> (Table 2).

Mean duration of symptoms of PFUIs was  $8.74 \pm 3.5$  months. Minimum duration of symptoms was 04 months and maximum duration of symptoms was 24 months (Table 3).

Mean duration of marriage was  $16.96 \pm 8.86$  years. Minimum duration of marriage was 02 years and maximum duration of marriage was 35 years (Table 4).

Mean IIEF score before surgery was  $20.10 \pm 3.47$ . Minimum score was 13 and maximum score was 25 (Table 5).

IIEF score after surgery was  $19.80 \pm 3.35$ . Minimum score was 13 and maximum score was 25 (Table 6).

On comparison of before surgery and after surgery IIEF score, we did not found any significant

difference. Before surgery IIEF score was  $20.10 \pm 3.47$  and after surgery was  $19.80 \pm 3.35$  (p-value 0.119) [Table 7].

Stratification of age was performed to determine the association of age with post-surgery IIEF score. Mean IIEF score was  $19.82 \pm 3.33$  in patients having age  $\leq 40$  years versus  $19.78 \pm 3.42$  in patients having age  $> 40$  years, this difference was statistically significant with p-value 0.04 (Table 8).

Stratification of BMI was performed, after surgery IIEF score was  $19.63 \pm 3.45$  in patients having normal BMI versus  $20.03 \pm 3.24$  in overweight to obese patients. This difference was not statistically significant with p-value 0.63 (Table 9).

Stratification of duration of symptoms was performed, in patients having duration of symptoms 4-8 months mean IIEF score was  $19.58 \pm 3.13$  versus  $20.06 \pm 3.62$  in patients having duration of symptoms 9-24 months. This difference was not statistically significant with p-value 0.56 (Table 10).

Stratification of duration of marriage was also performed. Mean IIEF score was  $19.18 \pm 3.58$  in patients having duration of marriage  $\leq 15$  years and  $20.0 \pm 3.20$  in patients having duration of marriage  $> 15$  years. This difference was not statistically significant, p-value 0.37 (Table 11).

**Table 1. Descriptive Statistics of Age of Patients.**

Age of Patients (Years)	
Mean	41.13
S.D.	11.10
Minimum	21
Maximum	60

**Table 2. Descriptive Statistics of Body Mass Index (BMI).**

	Height (cm)	Weight (Kg)	BMI (Kg/m <sup>2</sup> )
Mean	166.98	67.69	24.41
S.D.	7.84	10.77	3.52
Minimum	149	51	18.40
Maximum	179	89	32.20

**Table 3. Descriptive Statistics of Duration of Symptoms (Months).**

Duration of Symptoms (Months)	
Mean	8.74
S.D.	3.5
Minimum	04
Maximum	24

**Table 4. Descriptive Statistics of Duration of Marriage (Years).**

Duration of Marriage (Years)	
Mean	16.96
S.D.	8.86
Minimum	02
Maximum	35

**Table 5. Descriptive Statistics of before Surgery IIEF Score.**

IIEF Score	
Mean	20.10
S.D.	3.47
Minimum	13
Maximum	25

**Table 6. Descriptive Statistics of After Surgery IIEF Score.**

IIEF Score	
Mean	19.80
S.D.	3.35
Minimum	13
Maximum	25

**Table 7. Comparison of IIEF score Before and After Surgery.**

	IIEF Score Before Surgery	IIEF Score After Surgery	p-Value
Mean	20.10	19.80	0.119
S.D.	3.47	3.35	

**Table 8. Stratification of Age to Determine the Association of Age with Post-Surgery IIEF Score.**

IIEF Score After Surgery	Age Groups		p-Value
	≤40 Years	>40 Years	
Mean	19.82	19.78	0.04
S.D.	3.33	3.42	

**Table 9. Stratification of BMI to Determine the Association of BMI with Post-Surgery Erectile Dysfunction.**

IIEF Score After Surgery	BMI Groups		p-Value
	BMI $\leq 24.99$ Kg/m <sup>2</sup>	BMI $\geq 25.0$ Kg/m <sup>2</sup>	
Mean	19.63	20.03	0.63
S.D.	3.45	3.24	

**Table 10. Stratification of Duration of Symptoms to Determine the Association of Duration of Symptoms with Post-Surgery IIEF Score.**

IIEF Score After Surgery	Duration of Symptoms		p-Value
	4-8 Months	9-24 Months	
Mean	19.58	20.06	0.56
S.D.	3.13	3.62	

**Table 11. Stratification of Duration of Marriage to Determine the Association of Duration of Marriage with Post-Surgery IIEF.**

IIEF Score After Surgery	Duration of Marriage		p-Value
	$\leq 15$ Years	$> 15$ Years	
Mean	19.18	20.0	0.37
S.D.	3.58	3.20	

**DISCUSSION:**

Urethral injuries associated with pelvic fracture were initially termed pelvic fracture urethral distraction defects (PFUDDs) by Turner-Warwick based on the assumption that they were usually complete injuries. However, the International Consultation on Urological Diseases recommended replacing PFUDD with PFUI, because these injuries are not complete disruptions in most cases, and that even when they are complete, they are not necessarily distracted.<sup>11</sup>

Urethral reconstructive surgery offers a long-term cure for USD in most patients, with success rates  $>90\%$  in most series.<sup>12</sup> Urethroplasty has a low overall complication rate, and most patients are satisfied with their outcomes.<sup>13</sup> *De novo* postoperative ED is an increasingly recognized complication. Due to its good surgical outcomes, single-stage urethroplasty is being performed as the first choice in most patients, while two-stage procedures are reserved for complicated, lengthy, and multiple or recurrent strictures.<sup>14</sup>

Until recently, few studies evaluated the sexual function after urethroplasty and most of them have focused on erectile dysfunction (ED). The theoretical risk of ED comes from the close relationship of the cavernous nerves with the proximal urethra when they emerge from the pelvic floor, so nerves are liable to iatrogenic injury during urethral dissection leading to transient neuropraxia as the cause.<sup>15</sup>

Recent studies in the urological literature indicate the incidence of ED to be between 18% and 72%.<sup>16,17</sup> This difference is most likely due to the variability in the criteria used to define ED. The main definition of ED was an inability to obtain an erection firm enough for vaginal penetration, used in nearly half of the studies.<sup>15</sup> In present study we used IIEF score to define erectile dysfunction and we compared before surgery and after 3 months of surgery IIEF score to determine the effect of urethroplasty on erectile function. In present study, we did not found any significant change in IIEF score before and after urethroplasty, mean IIEF score before surgery was  $20.10 \pm 3.47$  versus  $19.80 \pm 3.35$  after surgery.

A study conducted by Sachin et al. found a significant difference in IIEF score before surgery and 3 months after surgery in patients with PFUIs. The IIEF score before surgery was  $24.15 \pm 0.8$  and it decreased to  $20.10 \pm 4.2$  after 3 months of urethroplasty in patients having anterior type urethral injuries. While in patients having posterior type urethral injuries IIEF score was  $24.0 \pm 1.2$  before surgery and it decreased to  $18.8 \pm 5.4$  after 3 months of urethroplasty.<sup>18</sup>

A study by Xi et al. did not find any significant difference in before surgery and after surgery IIEF scores. Mean IIEF score before surgery was  $16.57 \pm 7.98$  and after surgery IIEF score was  $17.22 \pm 8.41$ . The authors concluded that there is no effect of urethroplasty on erectile function as assessed by IIEF questionnaire in patients of PFUIs<sup>19</sup>. These results are similar to the results of present study.

Finally, we acknowledge some limitations in our study, ED was evaluated by self-reporting questionnaires carried only once at the time of postoperative interview. In addition, IIEF does not measure all sexual side effects such as numbness, weak ejaculation, shortening and curvature; therefore, there might be a group of men with sexual side effects that were not reflected in this data.

### CONCLUSION:

There is no effect of surgery on erectile function in patients of post-fracture urethral injuries (PFUIs). We found significant effect of age on erectile function after surgery in these patients.

### REFERENCES:

- Gomez RG, Mundy T, Dubey D, El-Kassaby AW, Firdaoussaleh, Kodama R.
- et al. SIU/ICUD consultation on urethral strictures: pelvic fracture urethral injuries. *Urology*. 2014;83(3 Suppl):S48-S58.
- Johnsen NV, Kaufman MR, Dmochowski RR, Milam DF. Erectile dysfunction following pelvic fracture urethral injury. *Sexual Med Rev*. 2018;6(1):114-23.
- Osman NI, Mangera A, Inman RD, Chapple CR. Delayed repair of pelvic fracture urethral injuries: Preoperative decision-making. *Arab JUrol*. 2015;13(3):217-20.
- Sangkum P, Levy J, Yafi FA, Hellstrom WJ. Erectile dysfunction in urethral stricture and pelvic fracture urethral injury patients: diagnosis, treatment, and outcomes. *Andrology*. 2015;3(3):443-9.
- Koraitim MM. Predictors of erectile dysfunction post pelvic fracture urethral injuries: a multivariate analysis. *Urology*. 2013;81(5):1081-5.
- El-Assmy A, Harraz AM, Benhassan M, Nabeeh A, Ibrahiem EH. Erectile function after anastomotic urethroplasty for pelvic fracture urethral injuries. *Int J Impotence Res*. 2016;28(4):1-4.
- Anger JT, Sherman ND, Dielubanza E, Webster GD. Erectile function after posterior urethroplasty for pelvic fracture\_urethral distraction defect injuries. *BJU int*. 2009;104(8):1126-9.
- Blaschko SD, Sanford MT, Schlomer BJ, Alwaal A, Yang G, Villalta JD, et al. The incidence of erectile dysfunction after pelvic fracture urethral injury: a systematic review and meta-analysis. *Arab J Urol*. 2015;13(1):68-74.
- [Hosseini J, SoleimanzadehArdebili F, Fadavi B, Haghhighatkhah H](#). Effects of Anastomotic Posterior Urethroplasty (Simple or Complex) on Erectile Function: a Prospective Study. *Urol J*. 2018;15(2):33-37.
- [Xie H, Xu YM, Xu XL, Sa YL, Wu DL, Zhang XC](#). Evaluation of erectile function after urethral reconstruction: a prospective study. *Asian J Androl*. 2009;11(2):209-14.
- Gómez RG, Mundy T, Dubey D, El-Kassaby AW, Kodama R, Santucci R.
- SIU/ICUD consultation on urethral strictures: pelvic fracture urethral injuries. *Urology*. 2014;83(3):S48-58. Erickson BA, Granieri MA, Meeks JJ, Cashy JP, Gonzalez CM. Prospective analysis of erectile dysfunction after anterior urethroplasty: incidence and recovery of function. *J Urol*. 2010;183(2):657-61.
- Kessler TM, Fisch M, Heitz M, Olanas R, Schreiter F. Patient satisfaction with the outcome of surgery for urethral stricture. *J Urol*. 2002;167(6):2507-11.
- El-Assmy A, Benhassan M, Harraz AM, Nabeeh A, El Housseiny II. Ejaculatory function after anastomotic urethroplasty for pelvic fracture urethral injuries. *Int Urol Nephrol*. 2015;47(3):497-501.
- Koraitim MM. Predictors of erectile dysfunction post pelvic fracture urethral injuries: a multivariate analysis. *Urology*. 2013;81(5):1081-5.
- Copuroglu C, Yilmaz B, Yilmaz S, Ozcan M, Ciftdemir M, Copuroglu E. Sexual dysfunction of male, after pelvic fracture. *Eur J Trauma Emerg Surg*. 2017;43(1):59-63.

22. Dogra PN, Singh P, Nayyar R, Yadav S. Sexual Dysfunction after
23. urethroplasty. *Urol Clin.* 2017;44(1):49-56.
24. Sachin D, Chikka MSM, Vilvapathy SK, Chandrashekar SR, Ramaiah K. Incidence of de novo erectile dysfunction after urethroplasty: a prospective observational study. *World J Mens Health.* 2017;35(2):94-99.
25. Xie H, Xu YM, Xu XL, Sa YL, Wu DL, Zhang XC. Evaluation of erectile function after urethral reconstruction: a prospective study. *Asian J Androl.* 2009;11(2):209-14.