CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
http://doi.org/10.5281/zenodo.3228698

Available online at: http://www.iajps.com *Research Article*

IMPACT OF URETERAL STENTS ON QUALITY OF LIFE

Dr Hafiz Muhammad Nuheel Iqbal, Dr Khadija Jamshaid, Dr Atif Sohail
Sheikh Zayed Medical College and Hospital Rahim Yar Khan

Article Received: March 2019 **Accepted:** April 2019 **Published:** May 2019

Abstract:
Objective: *The aim of this research work is to analyze the occurrence of signs, complications & tolerability linked with the ureteral stents and their effect on the QoL of the patients with the help of a QoL scale and a questionnaire.*
Methodology: *A sum of twenty two hundred young patients was the part of this research work for a period of complete ten years. These patients filled the QoL scale & questionnaire of our institute before ureteral stents, seven after the indwelling of the ureteral stents and fourteen days after the removal of the ureteral stents.*
Results: *Total fifteen hundred and twenty patients remained at the part of this study till end. The analysis of the information showed that unfavorable symptoms in 7 days after the insertion of the stents were very common, regarding the urinary rate, urgency, dysuria & hematuria, this disparity was significant. The analysis of the reactions of the patients on QoL scale after seven days of insertion of stents showed the obvious decrease in the quality of life of patients, in all the patients SD being a high value showing a great difference of the responses but after fourteen days of the removal of the stents, the mean scores of QoL were near to baseline.*
Conclusions: *Our research work proved many factors that displayed a significant enhancement in the prevalence of the various side effects & disturbed QoL. It adds to the present data on the same subject as observes the awareness of pathology found out by the availability of the foreign body in urinary tract & provision of counseling to the patients.*
KEY WORDS: *Dysuria and Hematuria, Urine, Ureteral Stents, Urology, Endoscopic, Dysuria, Indwelling.*

Corresponding author:
Dr.Hafiz Muhammad Nuheel Iqbal,
Sheikh Zayed Medical College and Hospital Rahim Yar Khan

QR code

Please cite this article in press Hafiz Muhammad Nuheel Iqbal et al., ***Impact Of Ureteral Stents On Quality Of Life.,*** *Indo Am. J. P. Sci, 2019; 06(05).*

INTRODUCTION:

The JJ ureteral stent has its placement in the lumen of urethral tract to maintain the complete permeability. The placement of the JJ stent is very common utilized method in the practice of urology to confirm the drainage of the urine from superior tract of urinary system [1]. Finey & Hepperlen for the very first time in 1978 used the JJ stents, from that time these stents are bearing changes in their materials and shape [2]. In current times, it is very common to use the stents with the help of metallic inserts and the stents with a costing of special gel.

The utilizations of the biodegradable substances inside stent's structure are under consideration to prevent the repetition of endoscopic mounting methods as well as the stent's suppression [3, 4] but the standard stent which is offering proper drainage of the urine, effectiveness for long duration & high tolerability for patients is not present [2, 3, 5, 6].

METHODOLOGY:

Total twenty two hundred patients with indwelled JJ stents were the part of this research work. All of the patients underwent surgery in urology department in Sheikh Zayed Medical College and Hospital Rahim Yar Khan from 2009 to 2018. The age of the patients requiring the JJ stents placement was 18-84 years. Before the application of any urological method, we got the consent of every patient. We completed all the procedures of the ethical committee of our institute. Cystoscopy utilized for the placement of double J stents in patients. In some patients, insertion of the stent carried out in open surgery. We tried our best to maintain the JJ stent for very small duration because of the complications in the drainage of urine from the tract. All the patients filled the QoL scale of Flanagan & questionnaire developed by our team members. From these two data sources we gathered the information for the determination of the clinical features as frequency of urine, dysuria, transferring pain of lumber, urgency & hematuria. The ranking of symptoms was from one to five or minimum to maximum.

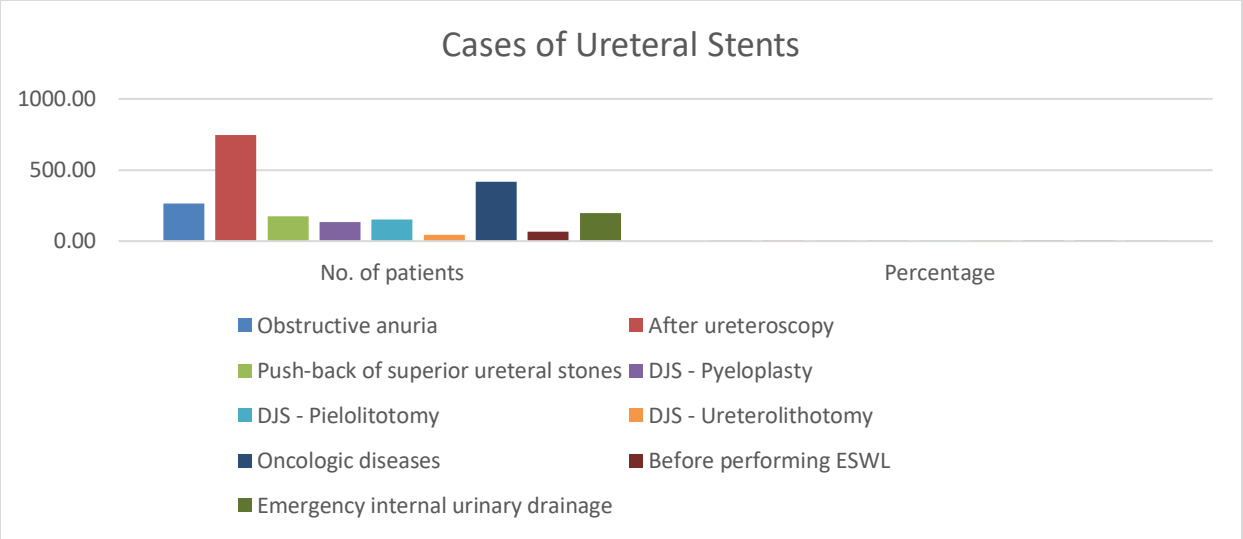
At 3 moments, patients filled the questionnaire, before the insertion of the JJ stent, seven days after the insertion of the stent an fourteen days after the removal of the JJ stents. Then the analysis of the result in accordance with the stent composition carried out. In QoL scale, the range of scores in 16-112 and the highest score describes the high QoL. All the gathered information analyzed with the help of SPSS software.

RESULTS:

Out of total twenty two hundred patients with ureteral stent, 1356 (61.63%) were male patients & 844 (38.36%) were female patients. The duration of the stent maintenance was from 5-218 days, with a mean duration of thirty one days. We utilized six to seven Ch stents, with length of twenty four to twenty eight centimeters. The patients distribution in accordance with the stent composition was; aliphatic polyurethane in 40.98% patients, coating of hydrophilic polyurethane in 20.72% patients, carbothane in 17.82% patients & silicon in 20.46% patients.

Table-I: Distribution of Cases According to Indication of Ureteral Stent Mounting

Placement indication	No. of patients	Percentage
Obstructive anuria	264.00	0.12
After ureteroscopy	748.00	0.34
Push-back of superior ureteral stones	176.00	0.08
DJS - Pyeloplasty	132.00	0.06
DJS - Pielolitotomy	154.00	0.07
DJS - Ureterolithotomy	44.00	0.02
Oncologic diseases	418.00	0.19
Before performing ESWL	66.00	0.03
Emergency internal urinary drainage	198.00	0.09



There was no particular choice of the stent, it was random. It was depending upon the availability of the stent type at that time in our institute except for the patients who were in need of long duration drainage of urine for them carbothane stents were in use. All the data is available in Tables-2, 3 and 4.

Table-II: Results Obtained After Applying of Our Not-Validated Questionnaire

Results Parameters	Before stent indwelling				At 7 days after the indwelling of stent				After removal of the stent (14 days)			
	A	B	C	D	A	B	C	D	A	B	C	D
Urinary frequency	0.480 %	0.950 %	1.470 %	0.640 %	63.240%	53.650 %*	52.020 %*	46.620 %*	10.910 %	5.710%	6.270%	4.820%
Dysuria	2.240 %	3.170 %	2.210 %	2.890 %	59.550%	57.460 %*	44.640 %*	55.940 %*	21.820 %	9.200%	7.010%	6.750%
Suprapubic pain	5.770 %	8.880 %	5.160 %	9.320 %	30.170%	30.470 %	33.94 %	36.650 %	3.850 %	1.260%	2.210%	1.920%
Urgency	1.920 %	1.900 %	2.950 %	2.890 %	60.350%	44.120 %*	46.490 %*	45.980 %*	10.270 %	8.570%	6.270%	7.710%
Lumbar pain	13.800%	18.400%	18.810%	15.750%	20.060%	24.440 %	26.19 %	24.750 %	1.120 %	0.950%	1.100%	2.570%
Macroscopic Haematuria	1.920 %	2.220 %	3.320 %	2.250 %	64.680%	51.420 %*	54.980 %*	45.980 %*	5.770 %	4.760%	4.050%	3.850%
Persistent Macroscopic Haematuria	1.280 %	1.580 %	5.160 %	1.920 %	29.530%	23.800 %*	23.61 %	18.000 %*	1.440 %	0.630%	0.730%	0.960%

Legend: A – aliphatic polyurethane; B – hydrophilic polyurethane coating; C – carbothane; D – silicone; * $p<0.05$

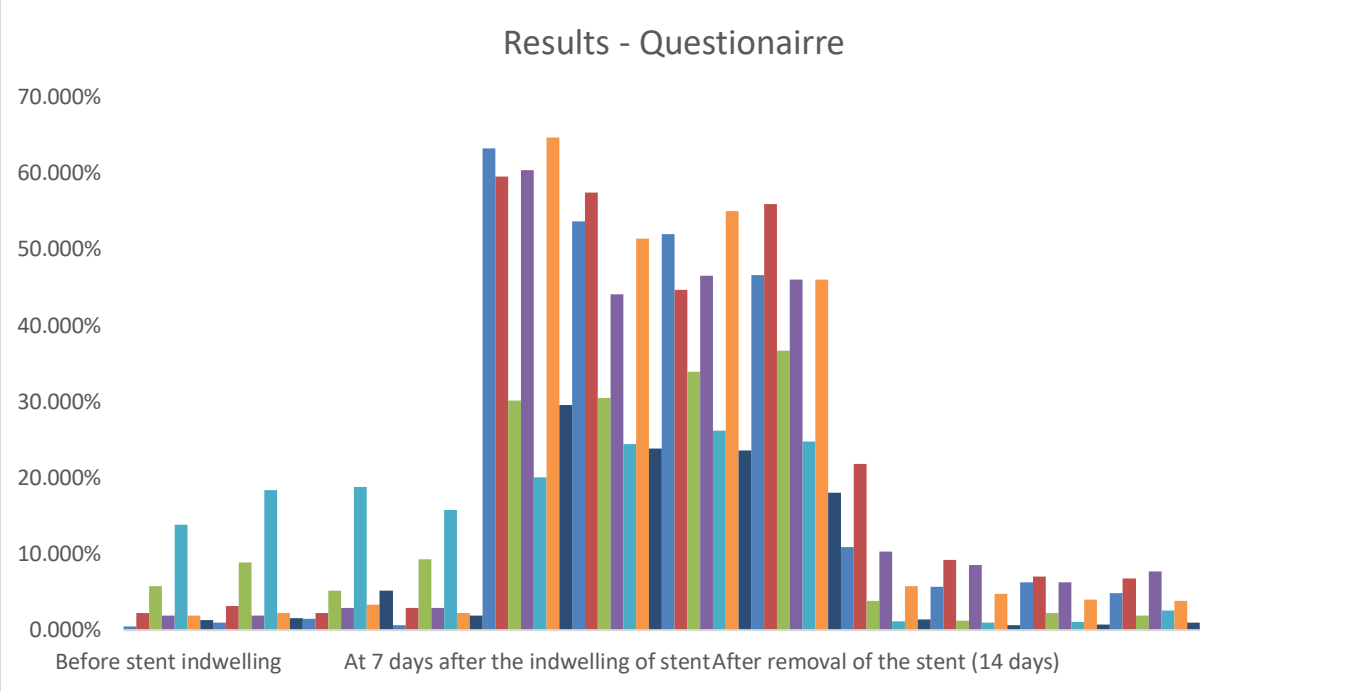
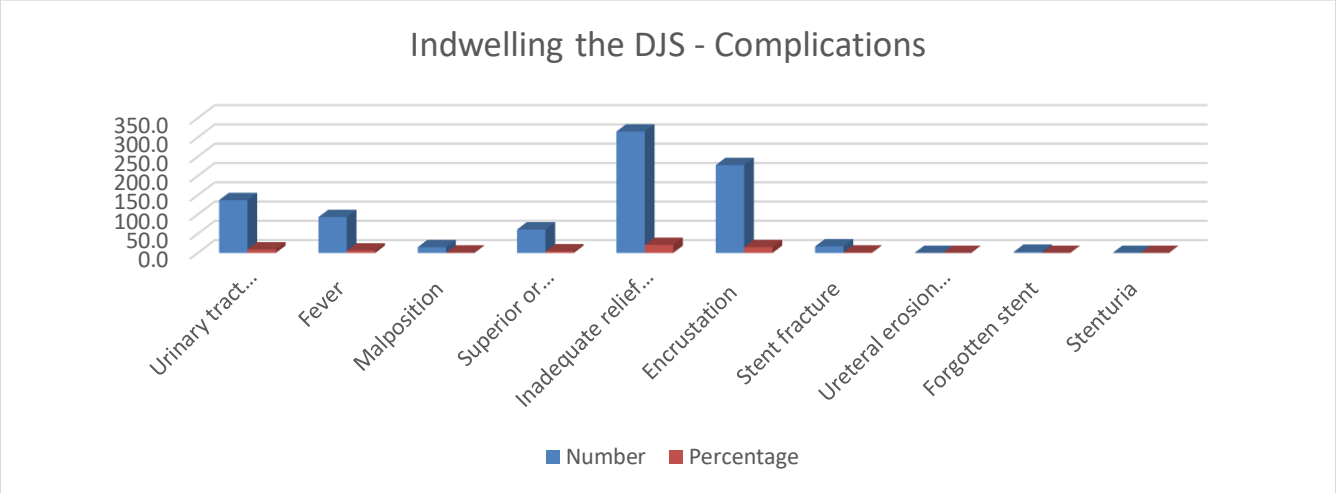


Table-III: Results Obtained from QOLS.

Parameters	Before indwelling stent		At 7 days after the indwelling of stent		After removal of the stent (14 days)	
	Mean	SD	Mean	SD	Mean	SD
Aliphatic polyurethane (n=623)	88.740	19.240	68.030	22.830	81.300	21.320
Hydrophilic polyurethane coating (n=315)	88.240	16.850	69.130	20.900	81.040	16.900
Carbothane (n=271)	62.890	14.650	59.670	16.790	64.330	18.930
Silicone (n=311)	86.980	16.730	79.670	14.340	86.320	20.300

Table-IV: Distribution of Cases by the Complications after Indwelling the DJS.

Complication	Number	Percentage	Comments
Urinary tract infection	137.0	9.01	no severe
Fever	93.0	6.11	evolution favorable
Malposition	15.0	0.98	solved by removing stent
Superior or inferior ureteral migration	61.0	4.01	no
Inadequate relief of obstruction	315.0	20.72	17.82% stent replacement was required
Encrustation	228.0	15.00	04 cases of (0.92%) - ESWL , 06 cases of (0.39%) ureteroscopy/cystolitholapaxy
Stent fracture	17.0	1.11	removal of stent fragments
Ureteral erosion or fistulization	No	No	No
Forgotten stent	3.0	0.19	No
Stenturia	No	No	No



DISCUSSIONS:

It is confirmed from this research work that, JJ stents are the cause of many complications among patients. The examination of the collected information revealed variations but statistically insignificant among the four kinds of the stents based upon their composition and shape. The symptoms of urgency & frequency of urination are the result of mechanical feature [2]. Most of the patients complained the increase of these symptoms in day time. The increase in the over activity of the muscle of bladder is the result of the availability of the JJ stents. These symptoms were available in the patients with important percentage after seven days of the insertion of the stents.

Dysuria was very common symptom with the use of the stents of large lengths. The pain of suprapubic is the result of the irritation of the mucosa of the bladder determined by the JJ stents but it can be in worse condition in the presence of other injection or stones in distal volute [2, 9]. In this research work, it was much frequent after the insertion of the stent, and it was available with very insignificant value after fourteen days of stent removal. Vesicoureteral reflux is the main reason of back pain [2, 9]. We concluded n obvious enhancement but insignificant occurrence of the pain in back. Another frequent sign is hematuria which is depending upon the physical activity of the micro trauma of mucosa. Intermittent Hematuria was available with significant rate in the patients with JJ stents and remained after fourteen days of removal of stents but not significant at that time.

Ilkram Ullah displayed the frequency of urination & urgency in 68.0% patients, dysuria in 70.0% patients, hematuria in 53.40% patients & pain of lumber in 1/3rd patients [11]. Chew BH [9], Haleblian G [12], Sur RL [13], Lingeman JE [14], Leibovici D [15] display urinary frequency, urinary urgency & dysuria in fifty to sixty percent patients, pain in lower back pain in nineteen to thirty two percent patients, suprapubic pain in 30.0% patients & hematuria in 25.0%. Joshi with the utilization of a questionnaire concluded that in 80.0% patients, pain is the result of stents that has a bad impact on the routine activities as well as the capacity of the work [8, 16].

Some researchers showed various outcomes; Damiano concluded the occurrence of irritation symptoms in 37.0% patients & hematuria in 18.0% patients [11, 17]. In accordance with the findings of the QoL scale, the average scores before the insertion of the stent were similar, near to ninety except the patients in which carbothane stent was in utilization, in these patients there is a great impact of the QoL because of the prevalent disease. After the placement of the stent, average score obviously showed the decrease in the quality of life of the patients but again after the removal of the stents, the average scores were near to the baseline. Leibovici showed an important percentage of disorders in the sleep patterns, depression, reduction in libido & other sexual malformation, 45.0% patients available with disturbed QoL [15] in the period of indwell stents & Joshi concluded a decrease of QoL in 80.0% patients with indwelled JJ stents [8, 16]. Modern medical science is working on many types of stents to found

the ideal one. For the selection of stents with ideal condition and with minimal complications various types of the stents are under consideration [3, 9, 12, 18-20].

CONCLUSIONS:

Modern technology and advancement in the field of medicine are helping a lot to save the kidneys. There are some side effects of JJ stents as well as adverse QoL which is not neglect able. This current research work on a high amount of the patients displays an important enhancement in the occurrence of various side effects and disturbed quality of life. Most of the complication initiated by the insertion of the stents are not life threatening. It is the duty of the professionals to get the innovate ideas to reduce the sufferings of the patients through their practice.

REFERENCES:

1. Chew BH et al. Ureteral Stents. In: Smith's Textbook of Endourology 2nd edition, Arthur D. Smith, Badlani Gopal, Bagley Demetrius, Clayman Ralph, Docimo Steven, Jordan Gerald, editors. PmphBc Decker, 2006, USA, p. 200-204.
2. Joshi HB, Newns MN, Stainthorpe A, MacDonagh RP, Keeley FX Jr, Timoney AG. Ureteral stent symptom questionnaire: development and validation of a multidimensional quality of life measure. J Urol. 2003; 169:1060-1064.
3. Mitty HA. Stenting of the ureter. In: Pollack HM, McClennan BL, eds. Clinical urography. 2nd ed. Philadelphia, Pa: Saunders, 2000; p. 3186-3205.
4. Li Ming Su, Ernest Sosa. Ureteroscopy and Retrograde Ureteral Acces. In: Campbell's Urology (eight edition), Retik A, Vaughan ED, Wein A, Kavoussi LR, Novick A, Partin A, Peters C, editors. W.B. Saunders, CD-ROM Edition, 2002.
5. Miyaoka R, Monga M. Ureteral stent discomfort: Etiology and management. Indian J Urol. 2009; 25:455-460. doi: 10.4103/0970-1591.57910
6. Al-Aown A, Kyriazis I, Kallidonis P, Kraniotis P, Rigopoulos C, Karnabatidis D, et al. Ureteral Stents: New Ideas, New Designs. Ther Adv Urol. 2010;2(2):85-92. doi: 10.1177/1756287210370699
7. El-Faqih SR, Shamsuddin AB, Chakrabarti A, Atassi R, Kardar AH, Osman MK, et al. Polyurethane internal ureteral stents in treatment of stone patients: morbidity related to indwelling times. J Urol. 1991; 146:1487-1491.
8. Vander Brink Brian A. Encrusted Urinary Drains: Evaluation and Endourologic Management. In: Smith's Textbook of Endourology. 2nd edition, Arthur D. Smith, Badlani Gopal, Bagley Demetrius, Clayman Ralph, Docimo Steven, Jordan Gerald, editors. PmphBc Decker, 2006, USA. p. 486-488.
9. Burckhardt CS, Anderson KL, Archenholtz B, Hägg O. The Flanagan Quality of Life Scale: Evidence of Construct Validity. Health Qual Life Outcomes. 2003; 1:59. doi: 10.1186/1477-7525-1-59.
10. Hao P, Li W, Song C, Yan J, Song B, Li L. Clinical evaluation of double-pigtail stent in patients with upper urinary tract diseases: report of 2685 cases. J Endourol. 2008;22(1):65-70. doi: 10.1089/end.2007.0114.
11. Ikram Ullah, Alam K, Wazir BG, Shah F, Nawaz A, Malik A. Indications and Morbidity in Indwelling Ureteral Stenting. Ann Pak Inst Med Sci. 2011;7(4):173-175.
12. Sur RL, Haleblian GE, Cantor D, Springhart P, Albala D, Preminger G. Efficacy of intravesical propivacaine injection on urinary symptoms following ureteral stenting: a randomized, controlled study. J Endourol. 2008; 22:473-478.
13. Filiberto Zattoni. Ureteroscopy: Complications. In:Smith's Textbook of Endourology. 2nd edition, Arthur D. Smith, Badlani Gopal, Bagley Demetrius, Clayman Ralph, Docimo Steven, Jordan Gerald, editors. PmphBc Decker, 2006, USA, p. 295-303.
14. Lingeman JE, Preminger GM, Goldfischer ER, Krambeck AE; Comfort Study Team. Assessing the impact of ureteral stent design on patient comfort. J Urol. 2009;181(6):2581- 2587. doi: 10.1016/j.juro.2009.02.019.
15. Leibovici D, Cooper A, Lindner A, Ostrowsky R, Kleinmann J, Velikanov S, et al. Ureteral stents: morbidity and impact on quality of life. Isr Med Assoc J. 2005;7(8):491-494.
16. Joshi HB, Stainthorpe A, MacDonagh RP, Keeley FX Jr, Timoney AG, Barry MJ. Indwelling ureteral stents: evaluation of symptoms, quality of life and utility. J Urol. 2003;169(3):1065-1069.
17. Damiano R, Oliva A, Esposito T, De Sio M, Autorino R, D›Armiento M. Early and late complications of double pigtail ureteral stent. Urol Int. 2002; 69:136-140.
18. Cadieux PA, Chew BH, Knudsen BE, Dejong K, Rowe E, Reid G, et al. Triclosan loaded ureteral stents decrease Proteus mirabilis 296 infection in a rabbit urinary tract infection model. J Urol. 2006; 175:2331.
19. Haleblian G, Kijvikai K, de la Rosette J, Preminger G. Ureteral stenting and urinary stone

management: a systematic review. J Urol. 2008;179(2):424-430.
20. Venkatesan N1, Shroff S, Jayachandran K, Doble M. Polymers as ureteral stents. J Endourol. 2010;24(2):191-198. doi: 10.1089/end.2009.0516.