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ORIGINAL ARTICLE

Comparison of Outcome of Renal Transplant with and Without Double J Stenting

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ABSTRACT

Background: Renal transplant is definitive treatment for chronic renal disease. Renal transplant involves three anastomosis, renal artery, vein and ureter. Some surgeons prefer urinary stenting for prevention of urinary complication like urinary leakage, while others do not. Still there is controversy whether to use or not use intraoperative stenting. The purpose of this study is to share experience of renal transplant with and without stenting.

Objective: To compare the outcome of renal transplant with and without intraoperative placement of Double J Stent

Study Design: Comparative study.

Place and Duration of Study: Department of Urology and Kidney Transplantation, Shaikh Zaid Hospital, Lahore from 1st January 2014 to 31st December 2015.

Methodology: One hundred and eight patients with chronic kidney disease had renal transplant. Randomly, 54 patients transplant was done with stenting and in 54 patients transplant was done without stenting. The patients were followed up for presence of urinary leakage.

Results: Among 54 renal transplants with stenting, no urinary leakage was found (0%), while in 54 patients without stent placement, urinary leakage was observed in 2 (3.7%) patients. (p=0.153, i.e. >0.05)

Conclusion: Ureteric stenting is not mandatory for renal transplantation. Frequency of urinary leakage among patients with renal transplant with stent was low while no leakage was seen with stenting. Difference in rate of urinary leakage with and without stenting was not statistically significant.

Keywords: Live related renal transplant; Intraoperative DJ stenting; Urinary leakage

INTRODUCTION

The kidneys are paired organs, which function to remove the waste products from the blood that are incompatible with life. They perform many functions like control blood pressure, prevent development of anaemia, help in the formation of bones and regulate body fluids and electrolytes balance. Failure of renal functions due to any disease process results in various manifestations; some are treatable disease like recurrent urinary tract infections and obstructive nephropathy, while others are devitalizing like diabetes and hypertension. However, the effects of these diseases on kidneys can be prevented by controlling theses diseases.[1] When the kidneys lose their function completely and there is no reversible element, this leads to a condition which is called as end stage renal disease (ESRD). The estimated population of the patients who suffer from such condition is 100-150 new patients/million population/year in Pakistan. With the passage of time the incidence of this condition is increasing because of more awareness as well as increase in incidence of certain diseases like diabetic nephropathy.[2]

With the development of ESRD, the available treatment options are either dialysis or renal transplantation. Transplantation is a superior option but it has certain limitations, like unavailability of donor and some logistic problems. Dialysis will still be required among patients who are candidates for transplantation.[1,3] There are two types of dialysis i.e. haemodialysis and peritoneal dialysis. Hemodialysis is used very commonly.[4] Renal transplant is the most effective primary treatment of chronic renal failure.[5] This procedure involves three anastomosis (renal artery, veinand ureter).[6]

Techniques of renal transplantation underwent significant improvement over the last decades. In the past, a 20-29% incidence of ureteral complications had been reported, which have reduced to 5-10%.[7] Urine leakage is most common complication observed in the early post transplantation period. The frequency of urinary leakage after transplantation is 3–9%.[8] Graft failure incidence has decreased significantly to less than 5%.[9] There is improvement in results of post transplant urine leakage after some important factors such as preservation of blood supply of ureter during donor nephrectomy, sparing of the periureteric fat during kidney harvesting and extravesical reconstruction technique.[10]

Double J stents placement is being performed in number of urological procedures.[11] Urine leaks or strictures are well-known complication after renal transplantation which is being treated by DJ stenting. However, there is no consensus about use of DJ stents at the time of ureter re-implantation.[12] Rodríguez et al[13] performed a study to compare the outcome of renal transplant with and without DJ stent. They found urinary fistulas in 7% patients with stent and among 16% patients without stent. They favoured the intraoperative placement of stents.

Currently, both stenting and no stenting is being practiced by the urologist after renal transplant. This study will be carried out to compare the outcome of the two techniques. The results of this study will help us to determine that which one is better of the two. So, that in future we will be able to make recommendations whether stenting should be used or not.

MATERIALS AND METHODS

After approval from Ethical Committee, one hundred and eight cases were included through inpatients department of Urology and Kidney Transplantation Shaikh Zaid Hospital, Lahore from 1st January 2014 to 31st December 2015. Any patient (20 -40 years) undergoing renal transplantation and of any gender were included. Patient with known lower urinary tract abnormality e.g. mega ureter, neurogenic bladder, bladder outlet obstruction assessed by IVU, urethrogram, and any iatrogenic injury to the donor ureter were excluded. After detailed history, complete examination and all workup of kidney donor and recipient, case was presented to evaluation committee of the hospital. Approval letter from human organ transplant authority was taken and proceeded for transplantation with informed consent. Lottery method was adopted to randomise the patients. Fifty four patients were assigned group A and received intraoperative DJ stent while other fifty four patients were assigned group B and DJ stent was not placed. In all patients ureter re implant was done by modified Leisch Gregoir technique and all the patients were observed for leakage of urine from anastomosis site. Urinary leakage was considered in patients who develop collection of fluid in the perirenal or perivesical area, which was detected clinically by pain/swelling or oozing out of fluid from the wound site within 30

days after renal transplant .The presence of fluid in the perirenal or perivesical area was confirmed by ultrasonography. Nature of fluid was further confirmed by checking creatinine level. The patients were labelled for leakage (yes / no) at the time of completion of follow-up. Data was gathered on a proforma. Study design was Randomized controlled trial and sample technique was non-probability convenient sampling.

The data was entered and analyzed through SPSS-20. Results of urinary leakage were compared by student 't' test and Chi-square test for any statistical significance. P-value< 0.05 was considered significant.

RESULTS

Group A patients had mean age of 36.22+5.66 years and group B had mean age of 38.81+5.58 years. Statistically, no significant (P>0.05) difference between the two groups was found (Table 1).

There were 35 (64.8%) male and 19 (35.2%) female patients in Group A and male to female ratio was 1.8:1. While in group B, there were 30 (55.6%) male and 24 (44.4%) female patients. The difference statistically between group A and B was not significant (p>0.05) [Table 2].

There was no leakage of urine in group A patients, while in group B it was noted in 2 (3.7%) patients. The difference statistically between group A and B was not significant (p> 0.05) [Table 3].

Table 1: Distribution of age in both groups (n=108)

Age (years)	Group A		Group B	
	No.	%	No.	%
20 – 25	6	11.1	5	9.3
26 – 30	9	16.7	7	12.9
31 – 35	19	35.2	15	27.8
36 – 40	12	22.2	17	31.5
41 – 45	8	14.8	10	18.5
Mean±SD	36.22±5.66		38.81±5.58	
P value	0.587			

Table 2: Distribution of genders in both groups (n=108)

Gender	Group A		Group B	
	No.	%	No.	%
Male	35	64.8	30	55.6
Female	19	35.2	24	44.4
P value	0.474			

Table 3: Comparison of two groups by leakage (n=108)

Leakage	Group A		Group B	
	No.	%	No.	%
Yes	-	-	2	3.7
No	54	100.0	52	86.7
P value	0.153			

DISCUSSION

Renal transplant is done more frequently now-a-days as compared to past. The procedure, however, is not out of complications. Apart from the graft rejection, anastomosis failure may be an important factor of failure of the procedure. With the availability of stents, some surgeons favour placing JJ stents while others not. This study was a comparison of the renal transplant with and without JJ stent placement. There was no statistically significant difference in results in terms of leakage. However, there was a little higher rate of leakage among patients without stent placement.

In the present study 36.22±8.66 years in one group and 38.81±7.58 in other group was mean age. Age range was 20–45 years in both groups. In another study by Ashraf et al[14] conducted in Pakistan, the mean age of the patients was 32.3 years with age range of 18 to 60 years. In another study by Walzack et al[15] conducted in USA, 36 years and 38 years in two different groups (age range was 18–68 years) was the mean age. Rodríguez et al[13] observed that 47.2 years in one group and 48.1 years in other group was mean age. Age range was 21-68 years. A diversity of the mean ages of the patients was observed in different studies. In our study, we included patients of age range of 20–45 years as the results may be affected by higher age of the patients.

The males were dominated in our study. There were 64.8% male patients in one group and 55.6% in other group. This higher proportion of the male patients was also observed in study by Ashraf et al[14] who observed that 82.2% were males and 17.8% were females. In another study by Rodríguez et al[13], the male were 68% in one group and 72.2% in the other group.

A study conducted by Zaki and colleague[16] on 300 kidney transplant patients with 150 patients in group A (with JJ stenting) and 150 patients in group B (without JJ stenting) revealed that Ureteric leakage was observed in 1 (0.66%) patient in group Aand 2 (1.33%) patients in group B. this study concluded that there is no statistically significant difference between two groups.

Bzoma et al[17] concluded that in contrast to our study placement of ureteric JJ stent can protect from urinary complications. They observed that urinary leakage was 10 times more in patient undergoing renal transplantation without JJ stent.

The frequency of urinary leakage in our study was 0% in patients with stenting and 3.7% without stenting. This difference was not significant statistically. Kırnap et al[18] compared the outcome of renal transplantation with and without stenting. In their study, Urinary leak was present in 8/125 group 1 (6.4%) and 6/257 group 2 patients (2.3%). They also did not observe any significant difference between the two groups. Walczak et al[15] also compared the frequency of urinary leakage in renal transplant patients. They did not observed any leakage in patients with or without stenting. They conclude no difference in stent placement or without it.

There are some studies that are in favour of DJ stenting. Srivasthava et al[19] documented that DJ stenting can be routinely done as it prevents urological complications and results were 7.7% complication rate with non-stented as compared to 2% with stented ureteral anastomosis.

This study showed hat placing a ureteric stent had very less complication rate. We did not found any advantage of placing stent. The cost of stent in a poor country like Pakistan in Rs= 12000/-. This cost may be reduced by not placing the stents. The study had few limitations. We did the randomization. However, it was not a double blinded study, as stents was placed in one group. This was an experience of a single centre of tertiary care unit, where all the surgeries were done by experienced surgeons. The results in other centres should also be documented.

CONCLUSION

No urinary leakage was observed with stent placement among patients with renal transplant and the frequency of leakage in patients without stenting was also very low. No statistically significant difference between the two techniques was observed. So, it is suggested that ureteric stenting is not mandatory for renal transplantation. Transplantation can be carried out safely without any stent placement without risk of urinary leakage.

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