

Voiding Profile in Post Renal Transplantation Patient

Poster No.
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Parikesit D¹, Widia F¹, Rahardjo HE¹

¹Urology Department, Cipto Mangunkusumo Hospital, Jakarta, Indonesia

Introduction

Renal transplantation (RTX) is expected to have higher survival rates, quality of life (QoL), cost effective, and better clinical results compare to renal replacement therapy (RRT) such dialysis. However, patients with chronic kidney disease (CKD) and long terms dialysis may have decrease bladder function due to disuses. Since statistical data regarding this issue is sparse and limited, our study aims to evaluate voiding characteristics of recipient after renal transplant surgery.

Materials and Methods

All adult (>18 years old) recipients from living donor without urinary retention and able to spontaneously urinate in a single center during January and December 2018 were examined. Anthropometric parameters, physical examinations, cause of CKD, daily urine production, types and duration of dialysis, and basic laboratory examination were collected before the transplantation. While post-operative laboratory examination, international prostate symptom score (IPSS, for male patients only), overactive bladder symptom score (OABSS), uroflowmetry, and post void residue (PVR) results were gathered accordingly.

Results

Seventy-one patients were evaluated with mean age of 46 ± 17.9 years old with male and female ratio of 52:19. Significant negative correlation was seen between duration of dialysis and daily urine production (r: -0.68, p<0.01). Majority of patients have Qmax more than 15 cc/s (70.4 %) with average flow of 22 ± 9.8 cc/s. Majority of patients had PVR less than 100 cc (91.5 %) with median PVR of 33.5 cc (2.3 – 142) and 6 patients having PVR >100 cc. IPSS result shows that frequency [2 (0 – 5)] and nocturia [2 (0 – 5)] are the main problem in these patients (n: 52). OABSS questionnaire also shows that frequency (OABSS 1) and nocturia (OABSS 2) was the main symptom reported by patient, with score 1 (0 – 2) and 2 (0 – 3), respectively.

Table 1 – Preoperative Patient's Characteristics

	Value
Age (years old)	46 ± 17.9
Sex (male : female)	52 : 19 (73.2 % : 26.8%)
BMI (kg/m ²)	22.85 ± 5.49
Cause of CKD	
Hypertension	42 (59.2 %)
Diabetes Mellitus	1 (1.4 %)
Both	19 (26.8 %)
Other	9 (12.7 %)
Urine per day (cc)	400 (0 – 4.000)
Anuria	20 (28.2 %)
Oliguria	19 (26.8 %)
Normal	32 (45.1 %)
Dialysis form (HD : CAPD)	70 : 1 (98.6 % : 1.4 %)
Duration of dialysis (month)	10 (0.3* – 120)
Laboratory results (preoperation)	
Creatinine (mg/dL)	5.86 ± 1.3
FBG (mg/dL) (n=21)	87 (72 – 242)
RBG (mg/dL) (n=42)	119 (56 – 290)
HbA1c (%) (n=26)	5.1 (4 – 8.2)

Table 2 – Postoperative Parameters

	Creatinine Value (mg/dL)	Daily Urine Production (cc)
Day 1	4.8 ± 2.27 [⊗] **	6150 (1530 – 4768)**
Day 2	2.1 (0.4 – 10.1)**	6428.3 ± 3035.7 [⊗]
Day 3	1.4 (0.2 – 12.2)**	5636.3 ± 2185.9 [⊗] *
Day 4	1.2 (0.6 – 13.1)**	5345.3 ± 1911.2 [⊗]
Day 5	1.2 (0.6 – 7.9)**	4800.2 ± 1705 [⊗] *
Uroflowmetry (1 month post operation)		
Qmax (cc/s)		22 ± 9.8[⊗]
< 15 cc/s		21 (29.6 %)
> 15 cc/s		50 (70.4 %)
Voided volume (cc)		208 (25 – 800)
< 150 cc		19 (26.8 %)
> 150 cc		52 (73.2 %)
PVR (cc)		33.5 (2.3 – 142)
< 100 cc		65 (91.5 %)
> 100 cc		6 (8.5 %)
IPSS (male only, 1-month post operation) (n: 52)		
Frequency		2 (0 – 5)
Urgency		0 (0 – 5)
Nocturia		2 (0 – 5)
Irritative score		5 (0 – 14)
Incomplete emptying		0 (0 – 5)
Intermittency		0 (0 – 4)
Weak stream		0 (0 – 2)
Straining		0 (0 – 5)
Obstructive score		0 (0 – 11)
IPSS Total score		6 (0 – 21)
Mild		35 (67.3 %)
Moderate – severe		17 (32.7 %)
QOL score		1 (0 – 3)
OABSS (1-month post operation)		
OABSS 1		1 (0 – 2)
OABSS 2		2 (0 – 3)
OABSS 3		0 (0 – 5)
OABSS 4		0 (0 – 5)
Total OABSS		4 (1 – 13)

[⊗] Normally distributed, paired T test was used for statistical analysis

* p < 0.05, compare to previous value

** p < 0.001, compare to previous value

Interpretation of Results

According to IPSS and OABSS questionnaire, the main symptoms experienced by patients after RTX was frequency and nocturia, respectively. Regardless of this fact, majority of patients QoL were not affected; 94.2 % of all patients were pleased after RTX since they do not need to attend Renal Replacement Therapy (RRT) anymore.

Conclusion

After RTX, majority of patients experienced frequency and nocturia problem due to various causes such as increase daytime and nighttime urine production, urinary tract infection, bladder capacity (both small and large), decrease bladder compliance.

References

¹Hotta K, et al. Atrophic bladder in long-term dialysis patients increases the risk for urological complications after kidney transplantation. Int J Urol. 2017;24(4):314-319.