

Significance of Time-Zero Biopsy for Graft Renal Function After Deceased Donor Kidney Transplantation

A.L. Lee^{a,b}, K.H. Huh^{a,b}, S.H. Lee^c, J.J. Lee^d, D.J. Joo^{a,b}, H.J. Jeong^e, M.S. Kim^{a,b,*}, S.I. Kim^{a,b}, and Y.S. Kim^{a,b}

^aDepartment of Surgery, Yonsei University College of Medicine, Seoul, Korea; ^bResearch Institute for Transplantation, Yonsei University College of Medicine, Seoul, Korea; ^cDepartment of Surgery, Ajou University School of Medicine, Suwon, Korea; ^dDepartment Surgery, CHA Bundang Medical Center, CHA University, Seongnam, Korea; and ^eDepartment of Pathology, Yonsei University College of Medicine, Seoul, Korea

ABSTRACT

Background. Donor organ quality from deceased donors affects graft survival after kidney transplantation. This study was performed to identify clinico-histological factors that affect early graft outcome, using time-zero biopsies of deceased donors.

Methods. Between December 2006 and July 2011, 135 recipients of deceased donor kidneys were included, and data concerning donor and recipient-related clinical characteristics and histological findings of time-zero biopsies categorized by use of the Banff 07 scoring system were included in the analysis. Mean donor age was 44.3 ± 12.3 years. Mean terminal serum creatinine level and cold ischemic time were 1.50 ± 0.96 mg/dL and 349 ± 166 minutes. Mean follow-up time after transplantation was 37 ± 16 months, and all recipients were followed for at least 1 year.

Results. Global glomerulosclerosis (38.5%), tubular atrophy (37.8%), arteriolar hyaline thickening (25.9%), interstitial fibrosis (23%), vascular fibrous intimal thickening (21.5%), and interstitial inflammation (20%) were the major pathologic findings of time-zero biopsies. The majority of pathologic scores were of mild degree. Among histological findings, arteriolar hyaline thickening and interstitial fibrosis were only significantly associated with early post-transplant renal function in multivariate analyses.

Conclusions. Considerations of clinico-histological findings were found to be valuable for predicting early graft outcome after deceased donor kidney transplantation.

THE SUITABILITY of renal allograft for transplantation from a deceased donor requires consideration of the donor's clinical status and the histo-pathological status of the kidney. Clinical scoring systems of deceased donors provide a means of assessing transplant strategies [1,2]. Nyberg et al [1] validated a scoring system that correlated early renal function and delayed graft function. This scoring system took into account donor age, cause of death, history of hypertension or diabetes, creatinine clearance, cold ischemia time, and the presence of renal artery plaque. Another assessment of transplantation suitability from deceased donors was the findings of time-zero biopsies to identify high-risk kidneys and to help predict graft outcomes [3–5]. Unfortunately, no consensus has been reached regarding the prognostic significances of

clinico-histological factors with respect to graft outcome, although time-zero biopsies are routinely performed in many centers. This study was performed to identify clinico-histological factors that affect early graft outcome, using time-zero biopsies of deceased donors.

METHODS

Patient Selection

Among 634 cases of kidney transplantation performed at our center between December 2006 and July 2011, only 157 patients (25%) of

*Address correspondence to Myoung Soo Kim, Department of Surgery, Yonsei University College of Medicine, 50-1, Yonsei-ro, Seodaemun-gu, Seoul 120-752, Korea. E-mail: ysms91@yuhs.ac

Table 1. Baseline Demographics and the Effects of Clinical Parameters on Early Post-Transplant Renal Function in Univariate Analysis

Clinical Parameters	Mean \pm SD or n (%)	eGFR at 6 Months		eGFR at 1 Year	
		Mean \pm SD	<i>P</i>	Mean \pm SD	<i>P</i>
Donor variables					
Age	44.3 \pm 12.3		<.001		.002
<35	28 (20.7%)	68.9 \pm 19.3		64.8 \pm 17.2	
35–44	32 (23.7%)	62.4 \pm 21.9		62.5 \pm 21.0	
45–54	47 (34.8%)	51.2 \pm 17.6		53.4 \pm 17.7	
\geq 55	28 (20.7%)	46.4 \pm 14.7		46.6 \pm 19.1	
Sex			.525		.174
Male	80 (59.3%)	55.6 \pm 20.7		54.6 \pm 19.8	
Female	55 (40.7%)	57.9 \pm 19.5		59.5 \pm 19.2	
BMI (kg/m ²)	23.0 \pm 2.8		.303		.373
<25	112 (83%)	55.7 \pm 19.2		55.8 \pm 19.7	
\geq 25	23 (17%)	60.6 \pm 24.3		60.0 \pm 19.6	
History of hypertension			.079		.366
None	106 (78.5%)	58.2 \pm 20.2		57.4 \pm 19.9	
Yes	29 (21.5%)	50.5 \pm 19.1		53.4 \pm 18.5	
History of diabetes			.009		.073
None	125 (92.6%)	57.9 \pm 19.9		57.4 \pm 19.6	
Yes	10 (7.4%)	40.8 \pm 17.4		45.3 \pm 17.3	
History of CPR			.242		.382
None	83 (61.5%)	58.3 \pm 20.6		57.8 \pm 20.6	
Yes	52 (38.5%)	54.0 \pm 19.4		54.7 \pm 18.1	
Use of inotropics			.026		.129
None	9 (6.7%)	71.0 \pm 27.6		66.1 \pm 24.1	
Yes	126 (93.3%)	55.5 \pm 19.2		55.8 \pm 19.2	
Cause of brain death			.133		.233
Hypoxia	22 (16.3%)	52.8 \pm 18.3		51.6 \pm 16.9	
Cerebrovascular	89 (65.9%)	55.5 \pm 20.1		56.5 \pm 20.1	
Brain trauma	24 (17.8%)	63.9 \pm 21.3		61.8 \pm 20.1	
ICU duration (day)	9.0 \pm 13.6		.728		.506
<7 days	70 (51.9%)	56.0 \pm 21.2		55.5 \pm 19.8	
\geq 7 days	65 (48.1%)	57.2 \pm 19.1		57.8 \pm 19.6	
Terminal s-creatinine (mg/dL)	1.50 \pm 0.96		.643		.473
<1.5	84 (62.2%)	57.7 \pm 20.4		57.9 \pm 21.6	
1.5–3.0	42 (31.1%)	55.2 \pm 21.5		53.3 \pm 16.9	
\geq 3.0	9 (6.7%)	51.8 \pm 7.4		58.8 \pm 7.2	
Cold ischemic time (hours)	5.8 \pm 2.8		.135		.271
<8	114 (84.5%)	51.6 \pm 19.9		53.0 \pm 20.5	
\geq 8	21 (15.6%)	58.0 \pm 20.1		57.6 \pm 19.3	
Extended-criteria donor			.016		.031
None	95 (70.4%)	59.4 \pm 19.5		59.0 \pm 19.4	
Yes	40 (29.6%)	50.0 \pm 20.5		50.7 \pm 19.1	
Recipient variables					
Age	45.8 \pm 10.6		.756		.116
<35	19 (14.1%)	59.3 \pm 16.5		63.5 \pm 22.0	
35–44	42 (31.1%)	56.8 \pm 22.4		59.1 \pm 18.0	
45–54	50 (37.0%)	57.2 \pm 19.7		54.7 \pm 18.8	
\geq 55	24 (17.8%)	52.8 \pm 20.5		49.8 \pm 20.8	
Sex			.412		.558
Male	79 (58.5%)	55.3 \pm 18.40		55.7 \pm 18.8	
Female	56 (41.5%)	58.3 \pm 22.40		57.8 \pm 20.9	
BMI (kg/m ²)	22.5 \pm 3.4		.405		.879
<25	107 (79.3%)	55.8 \pm 19.8		56.4 \pm 19.7	
\geq 25	28 (20.7%)	59.5 \pm 21.6		57.1 \pm 19.8	
History of diabetes			.202		.485
None	124 (91.9%)	55.5 \pm 18.7		56.2 \pm 19.0	
Yes	11 (8.1%)	69.4 \pm 31.7		61.0 \pm 27.5	

Download English Version:

<https://daneshyari.com/en/article/5729202>

Download Persian Version:

<https://daneshyari.com/article/5729202>

[Daneshyari.com](https://daneshyari.com)