



PREDICTORS FOR RENAL FUNCTION RECOVERY AFTER ORTHOTOPIC LIVER TRANSPLANTATION (OLT)

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INTRODUCTION

Patients with normal or mild impairment in kidney function pre-OLT whose status deteriorates in the perioperative period may need renal replacement therapy (RRT). A key point in this scenario is to determine the nature of renal dysfunction and anticipate whether kidney function is recoverable after OLT.

We evaluated a sample of stable post-intensive care hemodialysis (HD) patients from a group of 908 adults who were submitted to OLT. We investigated the average time of renal function recovery (out of need RRT) and determined risk factors for chronic dialysis support during a 1-year follow-up period.

METHODS

The Cox proportional hazards model was used to compare the relative risk of remaining or not in HD after 1 year.

RESULTS

We evaluated the clinical records of 155 patient, 53 (45–60) yo, 64% male, 28% pre-OLT diabetes mellitus, 21% pre-OLT hypertension, 40% virus-related disease, MELD 27 (22-35), 32% serum creatinine at time of registration >1.5mg/dL or on HD, 50% serum creatinine at time of OLT >1.5mg/dL or on HD, 17% acute re-OLT, 18% hepatocellular carcinoma, 14% pre-OLT continuous venovenous HD (CVVHD), 25% pre-OLT intermittent HD, 41% post-OLT CVVHD, 3 (2-0) U intraoperative packet red blood cells, 0 (0-5) U intraoperative fresh-frozen plasma (FFP), 14% intraoperative cryoprecipitate transfusion, 30% intraoperative platelet transfusion, 7 (4-14) days in intensive care unit (Table 1).

During the study period, 129 (83%) patients were removed from dialysis; of these, 11 (7%) remained on HD for more than 90 days until renal function recovery. Nineteen (12%) patients died on HD and only 5 (3%) patients were on HD after 1 year. The median of recovery time was 33 (95%CI 27 - 39) days.

In the multivariate analysis, fulminant hepatic failure (p=0.012), no pre-OLT hypertension (p=0.002) and less intraoperative FFP transfusion (p=0.043) were significant predictors of out of need RRT after OLT (Table 2).

RESULTS

Table 1: Patient data (n=155)

Age (years)	53 (45-60)
Gender (M/F)	99/56
pre-OLT Diabetes mellitus	43 (28%)
pre-OLT Hypertension	32 (21%)
Virus-related disease	62 (40%)
MELD	27 (22-35)
Serum creatinine at time of registration >1.5mg/dL or on HD*	47(32%)
Serum creatinine at time of OLT >1.5mg/dL or on HD	78 (50%)
Acute re-OLT	26 (17%)
Hepatocellular carcinoma	28(18%)
pre-OLT continuous venovenous HD (CVVHD)	21 (14%)
pre-OLT intermittent HD	38 (25%)
post-OLT CVVHD	63 (41%)
Intraoperative packet red blood cells	2 (0-3)
Intraoperative fresh-frozen plasma	0 (0-5)
Intraoperative cryoprecipitate transfusion	22 (14%)
Intraoperative platelet transfusion	47(30%)
Days in intensive care unit	7 (4-14)

* N = 149

Table 2: Multivariate Cox regression analysis of renal function recovery

		HR	95,0% CI for HR		p
			Lower	Upper	
Etiology of liver disease	Alcoholic cirrhosis (referent)	--	--	--	0,002
	Fulminant hepatic failure	2,703	1,240	5,895	0,012
	Others	0,838	0,462	1,521	0,562
	Viral	0,824	0,446	1,523	0,537
pre-OLT Hypertension	No	2,163	1,321	3,542	0,002
	Yes (referent)	--	--	--	
Serum creatinine at time of OLT	On dialysis (referent)	--	--	--	0,345
	<= 1,5	0,592	0,256	1,367	0,219
	>1,5	0,784	0,329	1,870	0,583
Intraoperative packet red blood cells		1,010	0,891	1,146	0,874
	Intraoperative fresh-frozen plasma	0,932	0,871	0,998	0,043
Intraoperative platelet transfusion	Yes (referent)	--	--	--	
	No	1,256	0,755	2,089	0,380
pre-OLT intermittent HD	Yes (referent)	--	--	--	
	No	2,293	0,968	5,433	0,059
post-OLT CVVHD	Yes (referent)	--	--	--	
	No	1,387	0,912	2,112	0,127

CONCLUSION

Therefore, one should considerate clinical and intraoperative factors to estimate the probability of renal function recovery after OLT. Furthermore, the high proportion of patients who recovered renal function point to a longer time period before including the patient in the kidney transplant list order after OLT.

