



# GLOMERULAR FILTRATION RATE STRATIFICATION IN COMBINED LIVER-KIDNEY TRANSPLANT VERSUS LIVER TRANSPLANTATION ALONE: ANALYSIS FROM THE NHSBT UK REGISTRY

Francesca Tinti<sup>1,2</sup>, Anna Paola Mitterhofer<sup>2</sup>, James Hodson<sup>1</sup>, James Ferguson<sup>1</sup>, Paolo Muiesan<sup>1</sup>,  
Thamara Perera<sup>1</sup>

1. The Liver Unit, Queen Elizabeth University Hospital Birmingham, United Kingdom.

2. Department of Clinical Medicine, Nephrology and Dialysis Unit, Sapienza University of Rome, Italy.

## OBJECTIVES

Criteria to perform combined liver-kidney transplantation (CLKT) remain an outstanding issue and the majority of the studies are based on US database. The aim of the study was to compare outcomes (overall and graft survival) for patients receiving LTA and CLKT and identifies any other factors which are predictive of survival from a European based registry.

## METHODS

We analysed data of 6035 patients transplanted between Jan 2001 to Dec 2012 from NHSBT UK Transplant Registry. Survival outcomes were compared between CLKT and liver transplant alone (LTA) with stratification on the basis of glomerular filtration rate (GFR) at transplant as reported by KDIGO Guidelines: GFR>60 ml/min; GFR=59-45ml/min; GFR=44-30 ml/min; GFR=29-15ml/min; GFR<15ml/min; patient on renal replacement therapy (RRT). Kaplan-Meier curves with log-rank tests, and Cox regression models were performed.

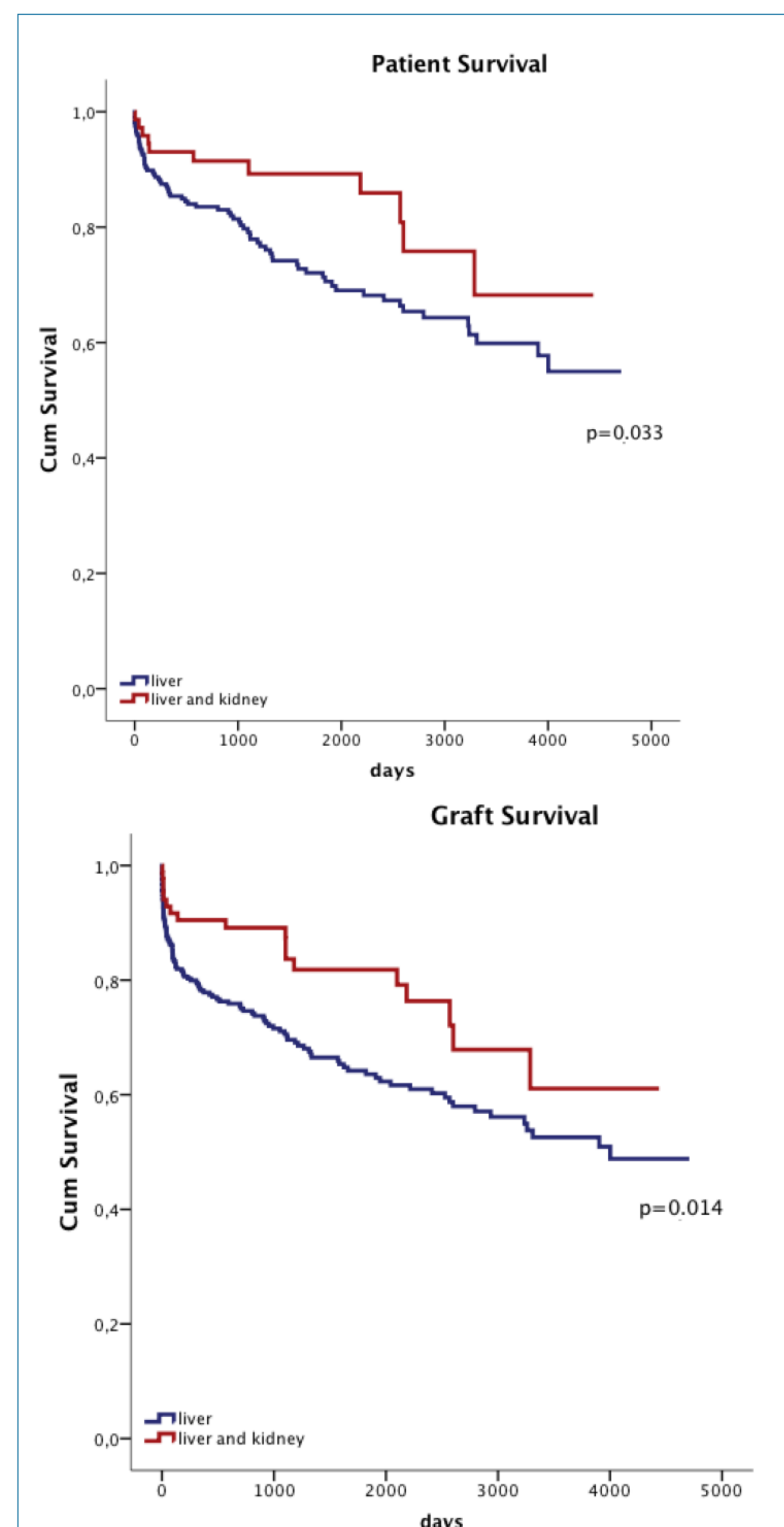
## RESULTS

5912 patients (98.0%) underwent liver transplant alone (LTA) and 123 (2.0%) patients received a CLKT. Three hundred and five (5.2%) of the LTA group were on RRT at time of transplantation, compared to 72 (58.5%) of the CLKT group. No patient with a MELD score >20 received renal replacement therapy (RRT) before transplant. LTA and CLKT patients demonstrated significant differences in terms of MELD (median: 15 [quartiles: 12-20] and 21 [20-25], respectively;  $p<0.0001$ ), as expected. Patients in CLKT only received DBD transplants, whilst LTA patients also received organs from DCD (11.0%) and living donors (0.4%).

In patients on RRT at time of transplantation, those who received a CLKT showed significantly improved graft ( $p=0.030$ ) and patient ( $p=0.038$ ) survival compared to those receiving a LTA. No significant differences between the groups were detected in patient or graft survival for other GFR stratifications.

In univariable Cox regression analysis, recipient age >50 years, female gender, MELD score, diabetes status, HCV infection, RRT at transplant and donor age >50 years were all found to be predictive of non-survival in patients receiving LTA. None of these factors were significant in CLKT patients, although the statistical power of the latter analysis was lower, due to the small sample size.

In a multivariable model including all clinically relevant variables simultaneously, the independent predictors of mortality in patients undergoing LTA were RRT in patients with MELD >20, HCV, diabetes and donor age >50 years (Table 1).



## CONCLUSIONS

This is the first study of its kind from a European registry. Beside the recognized risk factors for mortality in LTA patients, renal replacement therapy seems to be associated with reduced survival in this group. Further studies are needed to better define indication for CLKT.

Table 1. Multivariable model for reduced patient's survival.

	Hazard Ratio	p
RRT in MELD>20	1.77 (1.50-2.72)	0.010
HCV	1.32 (1.02-1.72)	0.035
Diabetes	1.42 (1.11-1.82)	0.006
Donor age (>50 yrs)	1.38 (1.09-1.83)	0.008

## REFERENCES:

- Nadim MK, Sung RS, Davis CL, et al. Simultaneous Liver-Kidney Transplantation Summit: Current State and Future Directions. Am J Transpl 2012; 12: 2901-2908.
- Nair S, Verma S, Thuluvath PJ. Pretransplant renal function predicts survival in patients undergoing orthotopic liver transplantation. Hepatology 2002;35:1179-1185.
- Eason JD, Gonwa TA, Davis CL, et al. Proceedings of Consensus Conference on Simultaneous Liver Kidney Transplantation (SLK) Am J Transpl 2008; 8: 2243-2251.

