PREDICTORS OF GRAFT OUTCOMES IN KIDNEY TRANSPLANT RECIPIENTS

J. Santos Lascasas, J. Malheiro, I. Fonseca, L. Martins, M. Almeida, S. Pedroso, L. Dias, A. Henriques, A. Cabrita.

Nephrology- Kidney Transplant Unit, Centro Hospitalar Porto, Oporto, PORTUGAL

OBJECTIVES

- Long-term kidney graft survival is both dependent on and defined by a well- functioning kidney.
- In clinical practice several graft function markers are used for identification of kidney transplant recipients (KTR) at risk of graft loss. However, whether these markers are an accurate measure for graft function and outcome predictors is still unsettled.
- Our aim was to **compare the performance of several kidney graft function markers** or their combination in **predicting death-censored graft loss (DCGL).**

METHODS

- We enrolled **290 stable KTR** visiting our outpatient unit in June 2010, regularly monitored until December 2013 or to graft failure or death.
- The following kidney graft markers were determined: **serum creatinine (Cr)**, **serum cystatin (Cys)** and **proteinuria** as logarithm (**LogProtU**), two products of these markers (**Cr*LogProtU; Cys*LogProtU**) and we also estimated GFR (eGFR) by **Cr-based equation (MDRD4)** and **Cys- based equations (Le Bricon, Cys-Stevens).**
- **ROC curve analysis of each marker**, considered as continuous variable, was performed to determine their DCGL diagnostic ability. **Multivariate Cox regression model** (co variables included: **receptor age and gender, donor age, dialysis time, acute rejection during the first year and number of transplant**) was used to assess the association between quartiles of each marker and DCGL.

	DCGL (n=19)	No DCGL (n= 271)	P-value
Recipient sex (Female) (%)	42.1	39.1	0.796
Second transplant (%)	12.9	31.6	0.024
First-yr acute rejection (%)	7.4	29.4	0.002
Donor sex (Female) (%)	35.7	35.3	0.972
Donor age (yr)	38.7±16.1	38.7±16.1	0.584
Recipiente age at June2010 (yr)	54.9±11.3	52.6±13.7	0.414
Dialysis time (months)	80.9±57.4	51.9±52.5	0.045
Fup at June 2010 (months)	97.4±82.2	93.7±78.1	0.839
Fup since June 2010 (months)	24.0 ±10.0	43.1±5.0	<0.001
Cr (mg/dl)	2.36±0.69	1.42±0.48	<0.001
Cys (mg/L)	2.30±0.62	1.32±0.43	<0.001
LogProtU	2.0±0.4	1.2±0.6	<0.001

RESULTS

- Mean follow-up (Fup) was **41.9±7.1 months** since June 2010, and **19 patients developed DCGL. Ten patients died with a functioning graft**.
- By ROC curve analysis, the predictive ability (AUC) of the studied markers for DCGL was: **Cr 87.7%, LogProtU 90.1%, Cys 91.3%, Cr*LogProtU 93.9% and Cys*LogProtU 95.8% (all p<0.001).**
- The same analysis for the eGFR formulas used was: **MDRD 88.3%, Cys-Stevens equation 90.5% and Le Bricon equation 91.3% (all p<0.001).**
- After multivariate analysis (Hazards ratios - HR), all the markers were **independent predictors** for DCGL **(p<0.001)**,HR: **Cr 5.722, Cys 6.748 and LogProtU 7.813**.
- The eGFR equations were also **independent predictors** for DCGL **(p<0.001),** HR: **MDRD 5.076, Cys-Stevens equation 5.128 and Le Bricon equation 6.667.**

CONCLUSIONS

- In our study we found that **Cys based markers and proteinuria** performed better than **Cr based markers to predict DCGL**.
- **Cys based formula** without a demographical adjustment **(Le Bricon)** presented a **higher predictive ability for DCGL** than MDRD-4 and Cys-Stevens.
- In the other hand, the **combination of proteinuria with Cr and Cys based markers** were **better predictors of graft outcome** than those markers alone, being the **product of Cys and proteinuria** a better predictor of graft failure.
- Our results argue against the use of serum Cr as the sole kidney function marker in the management of KTR.

REFERENCES:

- *Rodrigo E, et al. Cystatin C and albuminuria as predictors of long-term allograft outcomes in kidney transplant recipients. Clin Transplant 2013;27 (2): E177-E183.*
- *Nauta Ferdau L, et al . Albuminuria, proteinuria, and novel urine biomarkers as predictors of long-term allograft outcomes in kidney transplant recipients. Am J Kidney Dis. 2011; 57 (5): 733-743.*
- *He X, et al. Comparison of the predictive performance of eGFR formulae for mortality and graft failure in renal transplant recipients. Transplantation 2009 ;87(3):384-92.*
- Lezaic V, et al. Cystatin C and serum creatinine as predictors of kidney graft outcome. *Int Urol Nephrol. 2013 Dec 14.*

51ERA-EDTA

653--MP

N) Renal Transplantation. N2) Clinical epidemiology of renal transplantation.

Josefina Santos Lascasas

DOI: 10.3252/pso.eu.51era.2014

Poster presented at: 51 ERA-EDTA CONGRESS AMSTERDAM THE NETHERLANDS MAY 31 JUNE 3 2014

PosterSessionOnline.com