HIGH LEVELS OF PARATHYROID HORMONE AFTER ONE MONTH OF RENAL TRANSPLANTATION ARE RELATED TO LONG TERM GRAFT LOSS

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Background

Renal transplantation (RTx) only partially corrects certain metabolic alterations, especially in mineral metabolism (MM). Our study aims to examine the effect of RTx during the 1st year of RTx on MM parameters and to evaluate the factors mostly related to long term graft outcome.

Material and Methods

In 531 RTx pts (table I), transplanted in our unit between 2004 and 2014, clinical parameters, blood and urinary samples were collected before RTx and at 1, 6, 12 mths after RTx.

Median follow up was 7[2-12] yrs.

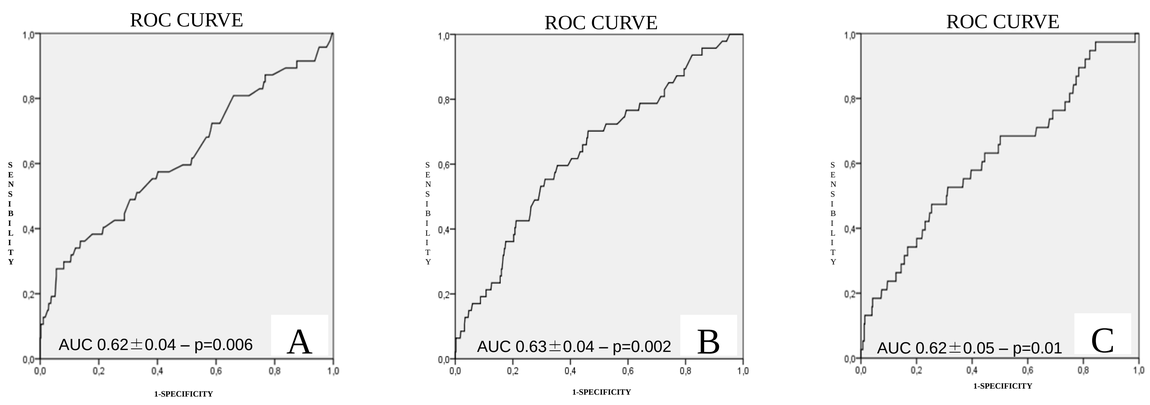
Patients (n)	***531***
Gender (M/F)	303/228
Age (Yrs)	48[39;58]
Type of dialysis (%) (HD/PD)	72/20
Time of dialysis (yrs)	48[30-71]
Type of KTx (%) (Deceased/Living)	84/16
Cold Ischemia Time (h)	13[11-16]
Restart of dialysis (n)	66

Table I: Characteristics of the cohort

Parameter	1st month	12th month	p
Calcium (mg/dL)	9.7[9.3-10.2]	9.8[9.5-10.2]	**0.04**
Phosphorus (mg/dL)	2.4[1.9-3.1]	3.1[2.7-3.6]	**<0.001**
iPTH (pg/mL)	70[42-114]	57[37-98]	**0.005**
ALP (U/L)	94[71-127]	86[64-114]	**<0.001**
25OH-D (ng/mL)	12[8.3-17.5]	15.1[9.9-21.5]	**<0.001**
1-25OH-D (pg/mL)	34 [21-55]	50[36-64]	**<0.001**

Table II: Mineral metabolism parameters during the first year of RTx

Figure 1: ROC curves (dependent variable: graft loss): A) creatinine at 1° mth; B) Prot-U at 1° mth; C) iPTH at 1° mth; D) creatinine at 1° mth + iPTH at 1° mth; E) Prot-U at 1° mth + iPTH at 1° mth



Results

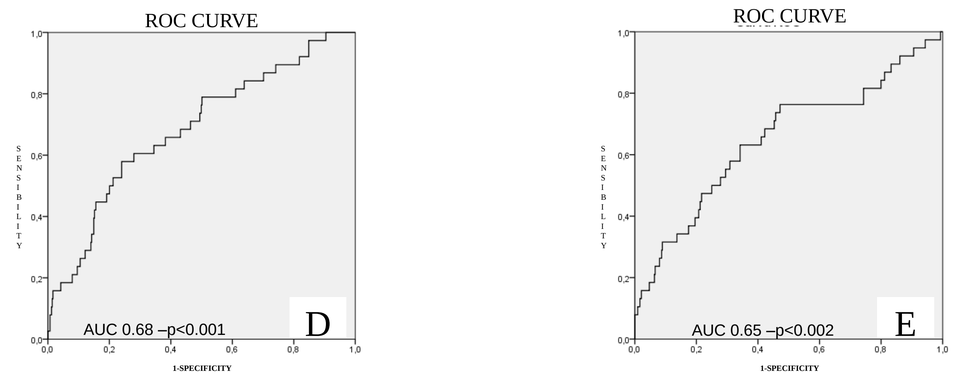
Eighty-four percent of patients received a kidney from a deceased donor; 72% and 20% of patients were respectively treated with haemodialysis and peritoneal dialysis before RTx. Time of dialysis was 48[30-71] mths. In the overall cohort MM parameters before RTx were: Ca 9.3[8.8-9.8] mg/dL, P 5.0[4.05-5.85] mg/dL, iPTH 205[123-443] pg/mL, ALP 106[66-170]U/L. Cold ischemia time (CT) was 13[11-16]h. In 13% of patients DGF was reported, and 13% of patients had at least one episode of rejection during the 1st year of RTx. At 1st and 12th month median creatinine was 1.38[1.10-1.70] and 1.33[1.10-1.76] mg/Dl respectively whereas Prot-U 0.20[0.10-0.30] and 0.17[0.11-0.25] g/24h.

During the 1st year of RTx, a modification of MM parameters was observed (table II). During the year post RTx 28% of patients received vitamin D. During the follow up, 66 pts restarted dialysis (D+). Compared to patients with a functioning graft (D-), D+ had longer CT (p=0.01), worst renal function at 1st mth, higher iPTH and ALP, especially at 1st mth of RTx (p<0.0001 and p=0.009).

A significant difference in 1st year rejection prevalence was found (p=0.001) between the two groups.

In addition to the well known predictive effects of creatinine, Prot-U and rejection, iPTH at 1st mth resulted independently related to graft outcome (p=0.04).

By means of ROC curve, we evaluated the discriminatory power in predicting graft outcome for 1st month creatinine (AUC 0.62±0.04 – p=0.006), Prot-U (AUC 0.63±0.04 – p=0.002) and iPTH (AUC 0.62±0.05 – p=0.01, – cut-off value 75 pg/mL). The inclusion of iPTH to creatinine and Prot-U models provided an increase in discriminatory power which was +6% for creatinine + iPTH (AUC from 0.62 to 0.68 –p<0.001) and +3% for Prot-U + iPTH (AUC from 0.62 to 0.65 –p=0.002).



Conclusions

Our data confirm that RTx is able to modify MM parameters from the beginning. Among MM parameters, early elevated iPTH levels may play a role on long-term graft outcome, adding discriminatory power to creatinine and Prot-U.

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