MINERAL METABOLISM MARKERS IN KIDNEY TRANSPLANTATION: INFLUENCE ON THE EVOLUTION OF GRAFT, PATIENT SURVIVAL AND CARDIOVASCULAR RISK.

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INTRODUCTION

Studies have shown a high overall and cardiovascular mortality in patients with disorders of bone metabolism. Cardiovascular disease is the leading cause of mortality in transplant patients. It could be speculated that bone metabolism disorders are a risk factor for cardiovascular morbidity and mortality in this population. The aim of this work is to study the relationship between mineral metabolism markers and graft survival , patient survival and its relationship with the development of cardiovascular disease at one year .

PATIENTS AND METHODS

From 419 renal transplant recipients performed between January 2000 and December 2008, we included 350 with a functioning transplant at 12 months. Mineral metabolism markers were measured at 1, 6, 12 and at least annually thereafter. The onset of cardiovascular disease (heart failure, ischemic heart disease, arrhythmia, cerebrovascular accident (CVA), peripheral vascular disease (PVD), valvular disease) , graft and patient survival were collected prospectively in our database . Mean follow-up was 98.8 ± 36 months.

RESULTS

Table 1.- Mineral metabolism markers

	Basal	6 months	12 months
Creatinine (mg/dl)	2,02 1,1	1,64 0,5	1,59 0,53
iPTH (pg/ml)	265 262	181 186	163 128
iPTH < 70	39 (11,1%)	59 (17,6%)	67 (19,4%)
iPTH 70-150	101 (28,9%)	123 (36,7%)	144 (41,7%)
iPTH 150-300	101 (28,9%)	106 (31,6%)	97 (28,1%)
iPTH > 301	109 (31,1%)	47 (14,1%)	37 (10,7%)
Ca (mg/dl)	9,4 0,41	9,87 0,78	10,08 4,28
Ca < 9,5	181 (51,7%)	79 (22,6%)	92 (26,4%)
Ca 9,5-10,5	130 (37,1%)	214 (61,1%)	198 (56,5%)
Ca > 10,5	39 (11,1%)	57 (16,3%)	60 (17,2%)
P (mg/dl)	2,68 1,19	3 0,62	3,01 0,72
P <2,5	182 (52,6%)	68 (19,4%)	59 (16,9%)
P2,5-3,5	115 (33,2%)	205 (58,6%)	208 (59,3%)
P >3,5	49 (14,2%)	77 (22%)	83 (23,8%)
Vit D (calcidiol)	16,8	20,7	19,6
Vit D < 16	137 (46,3%)	96 (33,3%)	113 (33,4%)
Vit D 16-30	108 (36,9%)	120 (41,7%)	141 (41,7%)
Vit D >30	51 (17,2%)	72 (25%)	84 (24,8%)
Ca x P		30,2 6,2	30,6 12,7

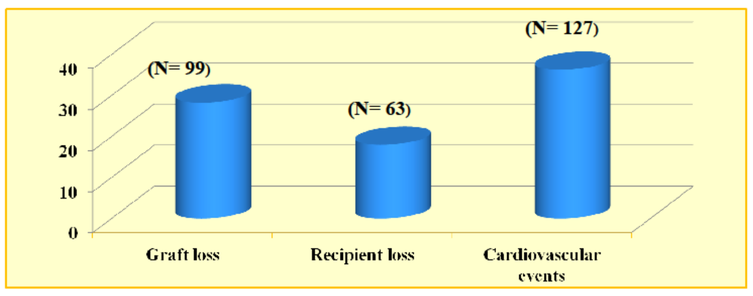
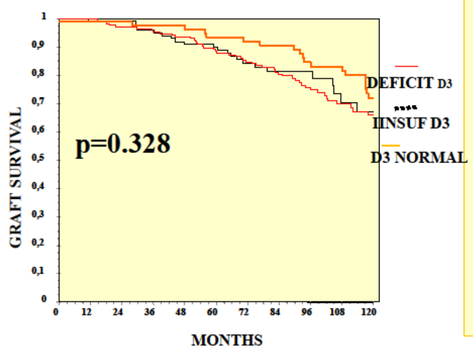


Table 2.- Graft survival associated variables

	HR	IC95%	p
Recipient age (years)	1,04	1,00-1,02	0,0003
Male recipient sex	0,59	1,36-0,98	0,041
Time on dialysis (months)	1,01	1,00-1,01	0,015
Hemoglobine at year (gr/dl)	0,87	0,76-0,99	0,031
Albumin at year (g/dl)	0,35	0,19-0,63	0,005
SCr at year (mg/dl)	1,99	1,45-2,73	0,005



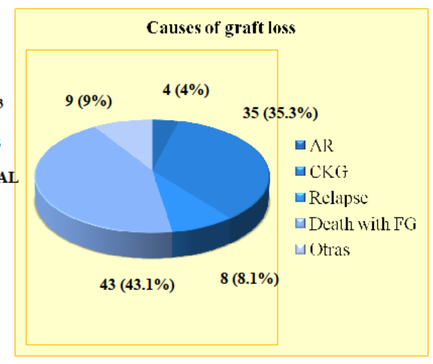
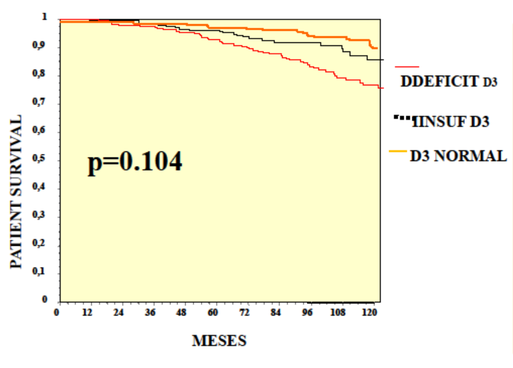


Table 3.- Patient survival associated variables

	HR	IC 95 %	p
Recipient age (years)	1,09	1,04-1,12	<0,0001
Albumin at year (g/dl)	0,35	0,15-0,79	0,0007
Time on dialysis (months)	1,01	1,00-1,02	0,025



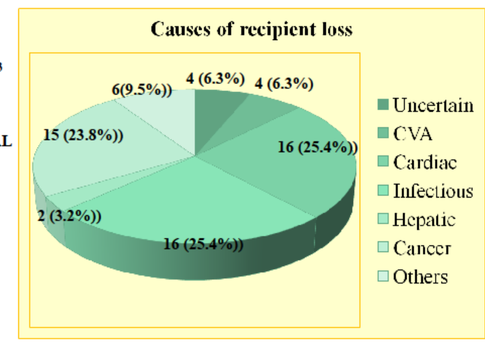
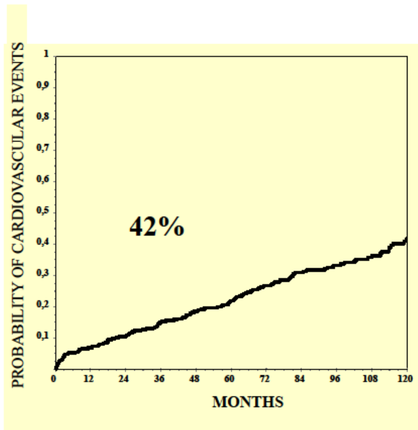
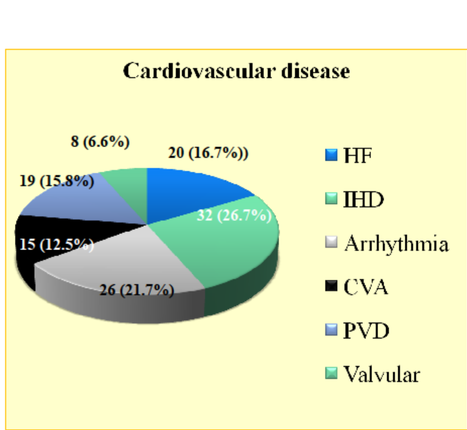


Table 4.- Cardiovascular disease associated variables

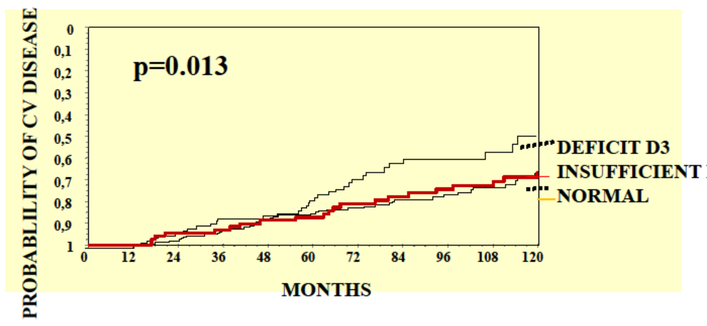
	HR	IC 95%	p
Age at transplant time (years)	1,05	1,03-1,07	<0,0001
SCr at year (mg/dl)	2,25	1,61-3,15	<0,0001
Median Vit D LN at year	0,62	0,41-0,92	0,018
Previous CV disease	1,91	1,32-2,78	0,0007





Cardiovascular disease and vitamin D3 status (mean values of the first year). 120 events

Cardiovascular disease from 12 months. 96 events



CONCLUSIONS

We have not objectified relationship between mineral metabolism markers during the first year and graft or recipient survival. Low levels of 25(OH)D are associated with development of cardiovascular diseases. Further studies would be needed to assess the true impact of vitamin D on cardiovascular risk .

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