

C reactive protein is modulated by subclinical inflammation in kidney allograft surveillance biopsies

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Introduction

- C reactive protein (CRP) mild persistent elevation is associated with chronic inflammation and cardiovascular morbi-mortality.
- CKD and renal function impairment are independent predictors of CRP increase.
- In kidney transplantation, CRP increased levels are associated with poorer graft outcome.

Aim

Clinical and subclinical kidney allograft acute rejection (SCR) is associated with proinflammatory modifications of peripheral blood mononuclear cells

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Graft inflammation may contribute to systemic inflammation

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To evaluate the relationship between subclinical inflammation in 1 year surveillance biopsies and systemic inflammation assessed by CRP levels.

Material & methods

Patients (n=544):

- Kidney transplantation performed at Rikshospitalet between 2009-2012.
- Standard immunological risk patients and CNI based IS
- Stable clinical situation, proteinuria <1+, creatinine < 300mmol/L

Surveillance 1 year biopsies:

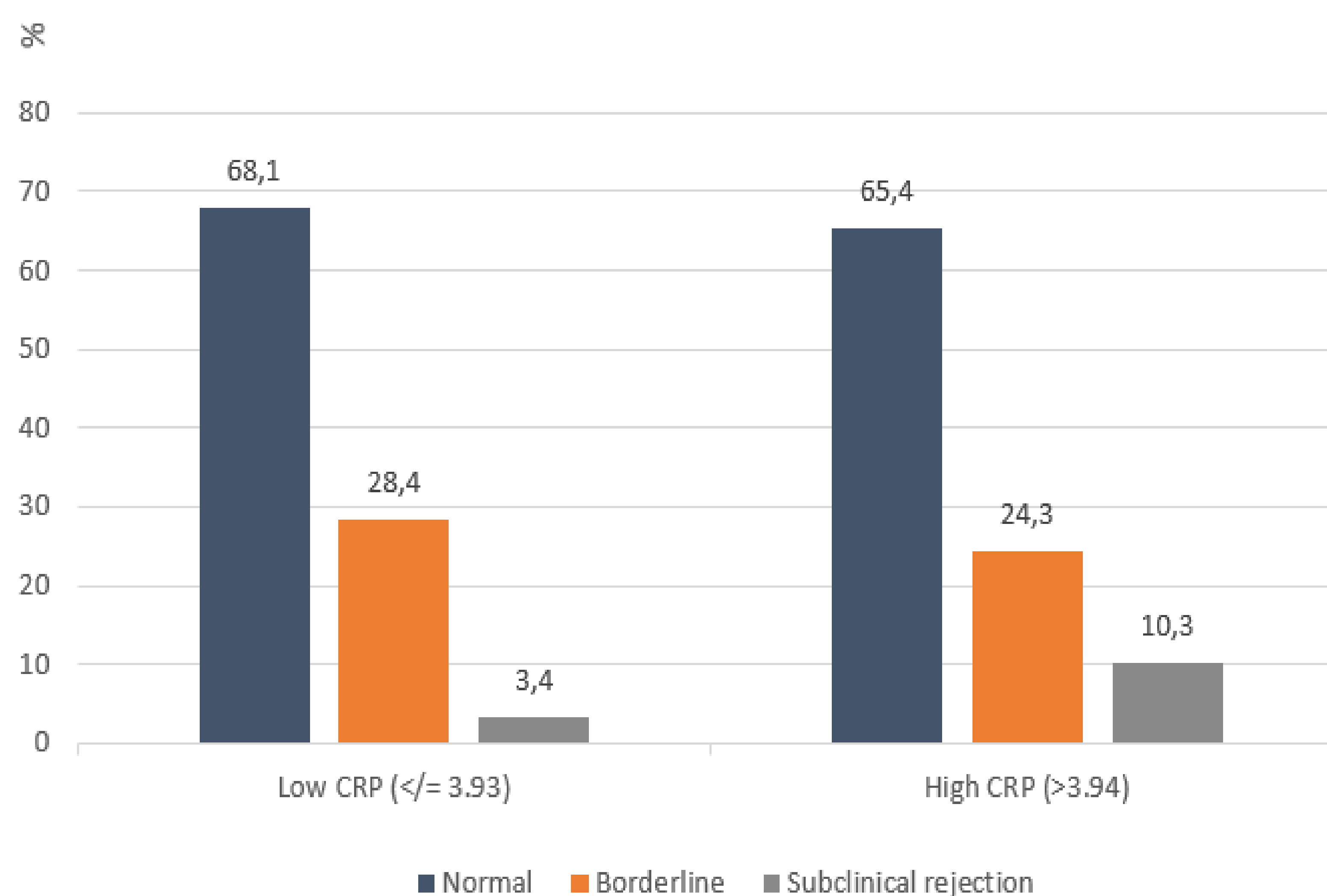
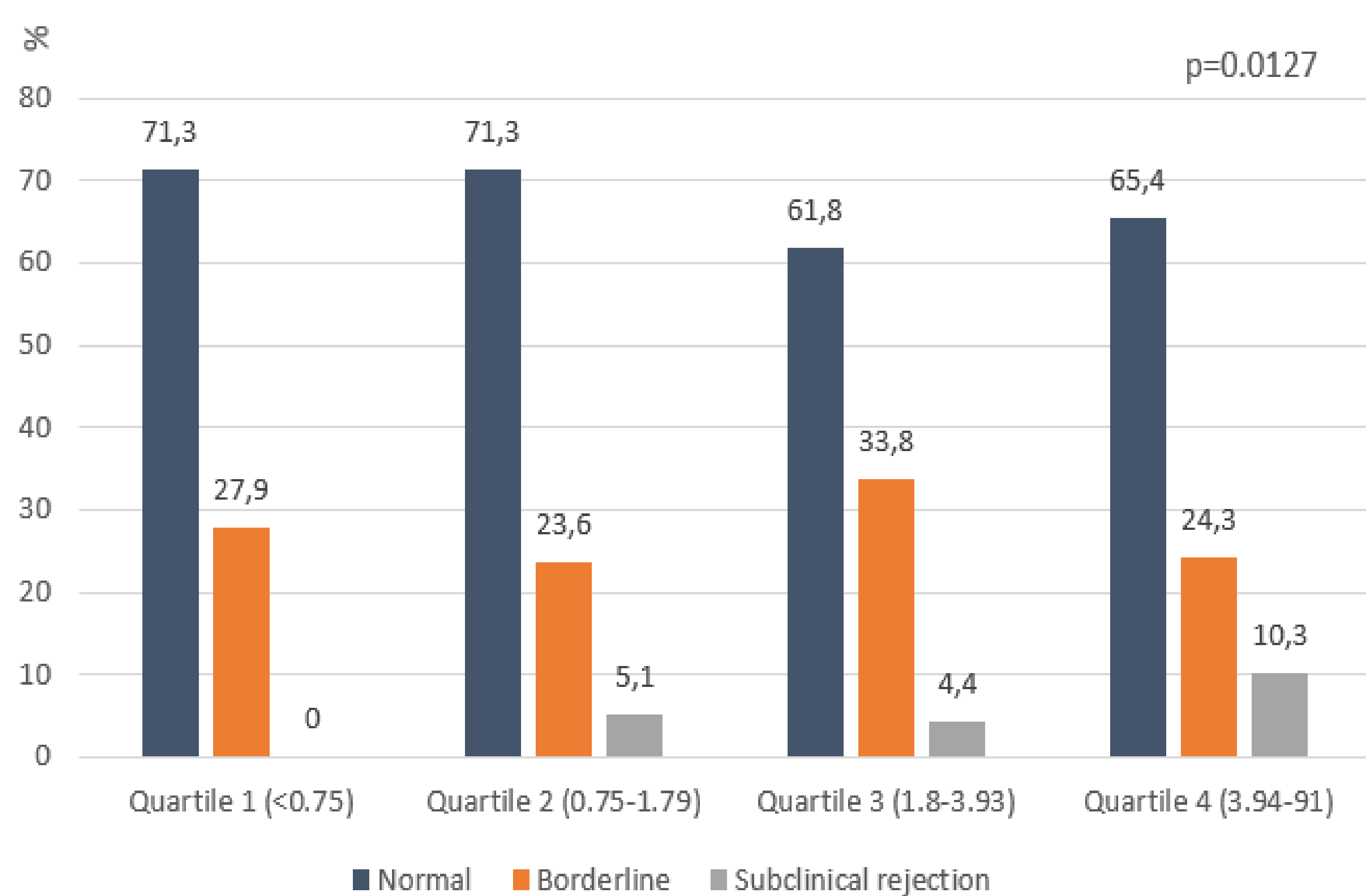
- hsCRP determination at the time of biopsy
- Biopsies classified as:

Normal: i 0-3, t 0

Bordeline: i 0-1, t 1-3; i 2-3, t 1

SCR: i 2-3, t 2-3

Results



Conclusion

The presence of subclinical tubulo-interstitial inflammation in one year post-transplantation surveillance biopsies is an independent predictor of increased hsCRP levels

	Low CRP (N=408)	High CRP (N=136)	p
Donor age (years)	50.6±15.0	51.5±16	0.5451
Donor sex (fem)	195 (47.8%)	50 (36.8%)	0.025
Recipient age (years)	54.5±14.3	56.4±13.1	0.169
Recipient sex (fem)	114 (27.9%)	42 (30.9%)	0.431
Nº transplantation>1	45 (11%)	16 (11.8%)	0.814
Living donor	127 (31.1%)	31 (22.8%)	0.064
HLA A mismatch >0	329 (80.6%)	112 (82.3%)	0.196
HLA B mismatch >0	358 (87.7%)	116 (85.3%)	0.547
HLA DR mismatch >0	246 (60.3%)	77 (56.6%)	0.572
Presence of DGF	26/405 (6.4%)	9/135 (6.7%)	0.920
CsA vs TAC (CsA)	189 (46.3%)	69 (50.7%)	0.796
Creatinine 1 year (mmol/l)	114.3±34.4	119.5±40.1	0.146
Urine strip proteinuria:			0.139
Negative	298/386 (77.2%)	87/126 (69%)	
Suspicion	60/386 (15.5%)	29/126 (23%)	
1 +	28/386 (7.3%)	10/126 (8%)	
BMI 1 year (kg/m2)	26.1±4.6	27.8±5.4	0.0005
Presence DSA 1 year	31 (7.6%)	11 (8.1%)	0.853
SBP (mmHg)	132.5±14.2	133.0±14.9	0.759
DBP (mmHg)	77.8±9.8	78.4±10.2	0.499
Previous DM	64/406 (15.8%)	33/134 (24.6%)	0.020
Prednisone mg 1year	5.5±3.8	5.7±2.6	0.622
Smoking:			0.288
Active	69/403 (17.1%)	27/134 (20.1%)	
Never	200/403 (49%)	56/134 (41.8%)	
Earlier	134/403 (32.9%)	51/134 (38.1%)	
Positive urinoculture	15 (3.7%)	26 (19.1%)	<0.0001
Biopsy diagnosis:			0.0067
Normal	279 (68.4%)	89 (65.4%)	
Borderline	115 (28.2%)	33 (24.3%)	
SCR	14 (3.4%)	14 (10.3%)	

	P	OR	95% CI
Donor sex (male)	0.0566	1.524	0.988-2.350
BMI 1 year	0.0016	1.072	1.027-1.119
Previous DM	0.2797	1.335	0.791-2.253
Biopsy diagnosis: Borderline	0.6475	0.893	0.549-1.452
SCR	0.0163	2.760	1.205-6.323
Positive urinoculture	<0.0001	7.260	3.530-14.935