



# Calcium channel blockers in long term protection of kidney transplant



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## Introduction

Uncontrolled high levels of calcineurin inhibitors (CI) cause rapid decrease of glomerular filtration rate (GFR) in transplanted kidney due to the constriction of glomerular afferent and efferent arterioles and the decrease in cortical blood flow. Simultaneous introduction of calcium channel blockers (CCB) prevents this effect. The aim was to study the long-term results of such combined treatment.

## Methods

A cohort of 218 patients (90 females, 120 male, age 46.5+/-12.9 years) with end-stage renal disease (ESRD) after kidney transplantation (KTX) was recruited. Patients with acute rejection and acute kidney injury were excluded. Immune suppression was either double-drug (steroids + CI) or triple-drug (steroids+CI+proliferation inhibitors). 87 patients received CCB and 131 did not. Both groups were followed up for two years. Serum creatinine and estimated GFR (eGFR) was measured during the follow-up.

## Results

Serum creatinine was significantly lower in patients who received CCB (123.8+/-65.9 vs. 144.9+/-62.9  $\mu\text{mol/l}$ ;  $p=0.018$ ). Also, the number of patients with eGFR <60 ml/min/1.73m<sup>2</sup> was significantly lower in the group receiving CCB (40.2% vs. 59.8%;  $p<0.001$ ).

Tab. 1 eGFR and calcium channel blockers.

eGFR [ml/min]	With calcium channel blockers		Without calcium channel blockers		Chi square
	n	%	n	%	
<60	35	40,23%	96	73,28%	$\chi^2=23,816$ $p<0,001$
>60	52	59,77%	35	26,72%	

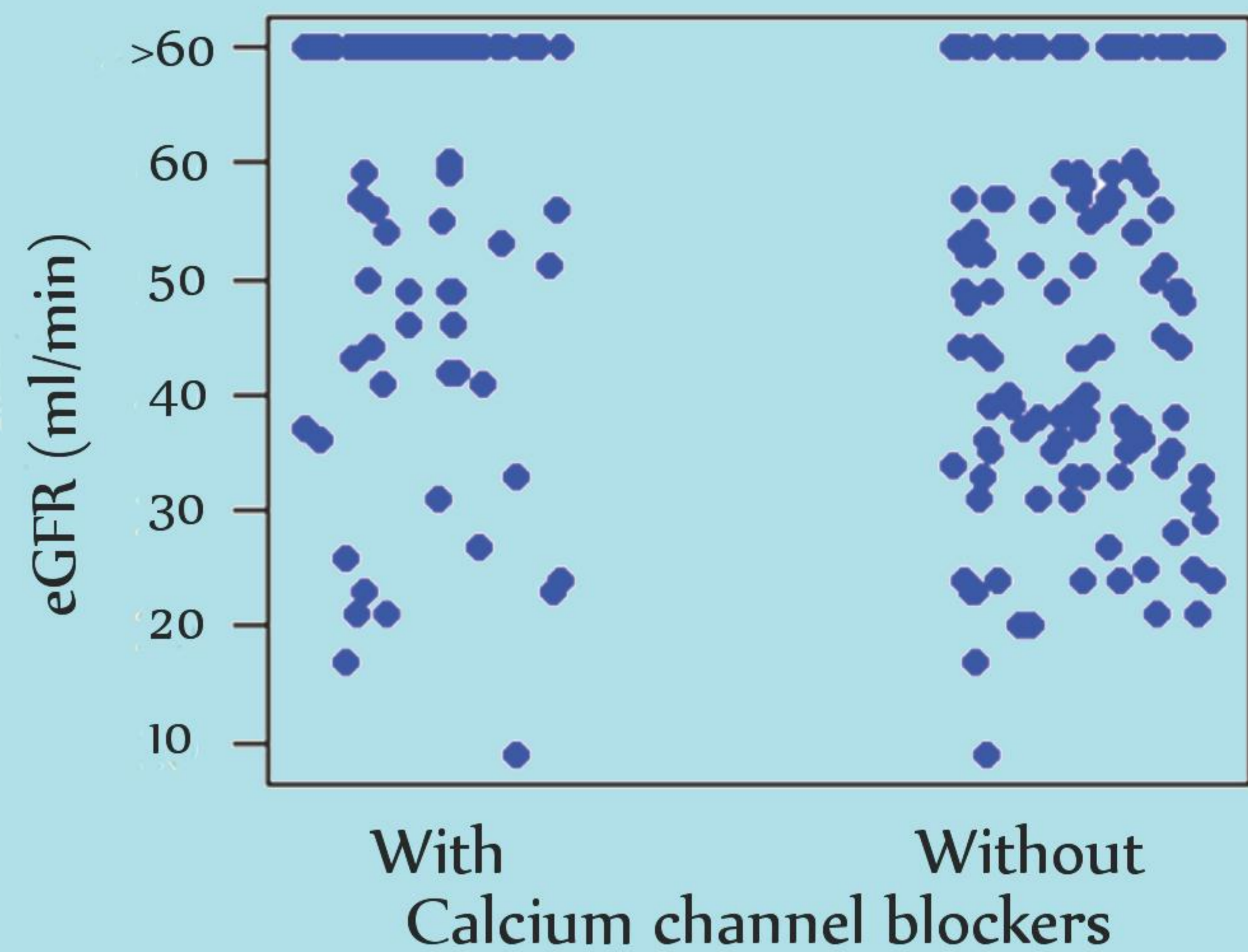


Fig. 1 eGFR and calcium channel blockers.

Tab. 2 Creatinine and calcium channel blockers.

Group	Creatinine [ $\mu\text{mol/l}$ ]		t-test
	Mean	SD	
With calcium channel blockers	123,83	65,87	$t=-2,376$ $p=0,018$
Without calcium channel blockers	144,91	62,97	

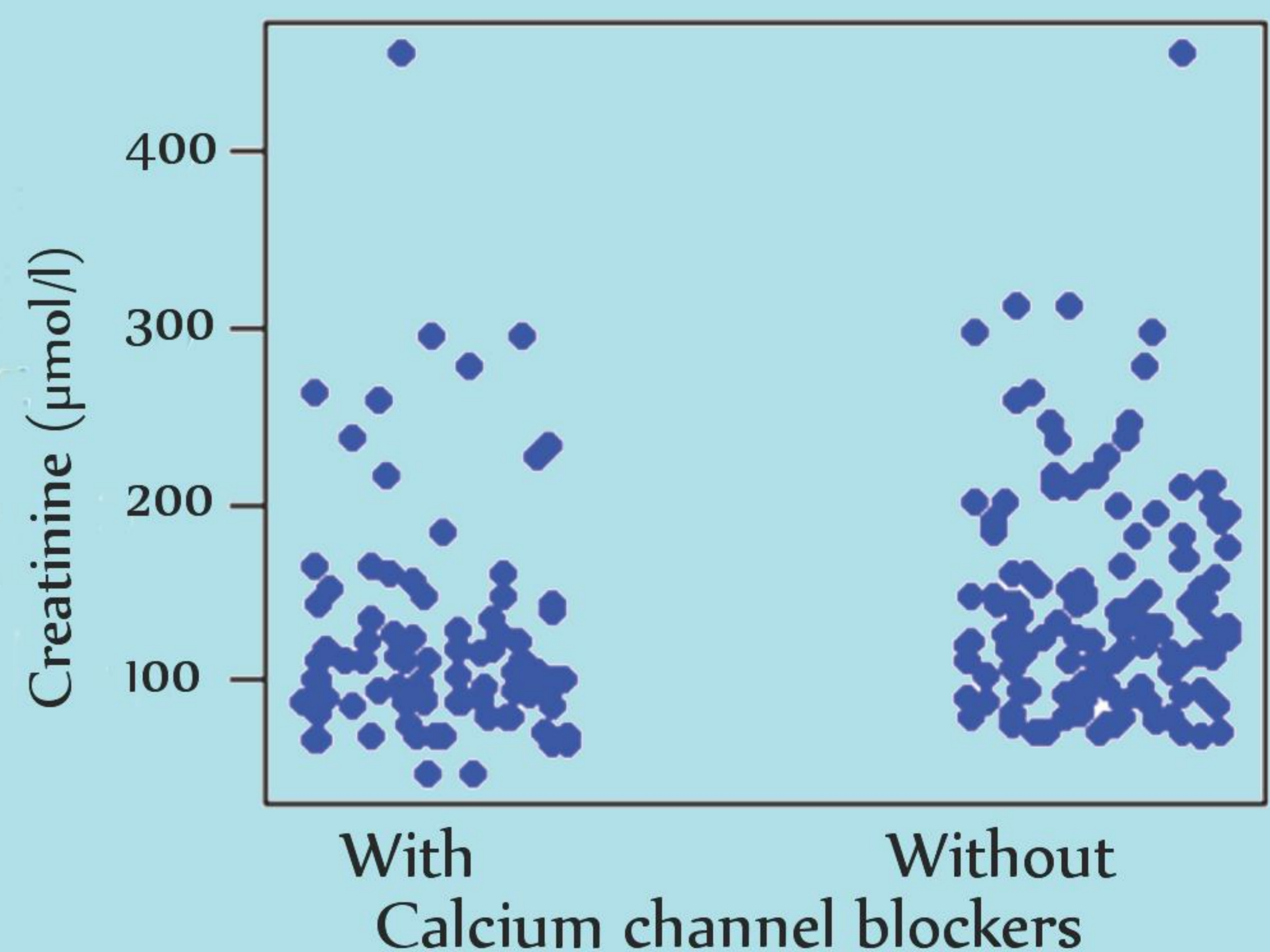


Fig. 2 Creatinine and calcium channel blockers.

## Conclusions

CCB treatment in ESRD patients with KTX who receive CI is associated with better function of the transplanted kidney. Better function of the transplant may have long-term beneficial effects for cardiovascular health.

