RISK FACTORS FOR PROGRESSION TO DIALYSIS AND USE OF ACE-I IN CKD STAGE 5

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OBJECTIVES

Angiotensin converting enzyme inhibitors (ACE-I) slow the progression of chronic kidney disease in mild to moderate renal insufficiency. Although the role of ACE-I in advanced stages is still unknown, clinicians usually suspend these drugs, probably because of their correlation with hyperkalaemia. To verify if the protective role of ACE-I persists even in end stage renal disease, we have analysed data of patients who referred to our outpatients CKD stage 5 clinics from 2001 to 2013

METHODS

Our sample included 342 patients (64 % males, mean age 72 years) who have chronic kidney disease with a mean eGFR (MDRD) 9.5 ml/min/1.73m^2 at first visit. In our sample, 55% received ACE-I (ramipril). Baseline characteristics included age, gender, comorbidities, underlying nephropathy, arterial blood pressure, estimated glomerular filtration rate, antihypertensive treatment , use of phosphate binders and biochemical markers (serum creatinine levels, potassium, phosphate, serum calcium levels , parathyroid hormone, 24-hours proteinuria). Primary end point was dialysis start (or death for all causes).
A cox regression model was used to determine the hazard ratio for the primary end point. Statistical analysis, was performed by SPSS.

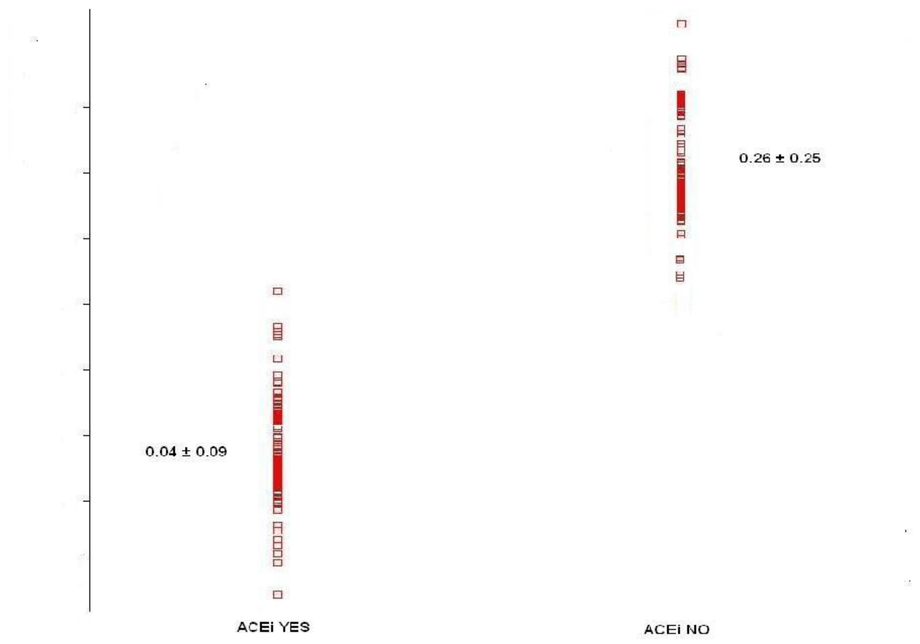
RESULTS

During the follow up, 201 of 342 patients started dialysis with a mean eGFR 7 ml/min/1.73m2. 60 of 342 patients (17%) died. Patients treated with ACE-I had a monthly eGFR decline significantly lower than patients not treated with ACE-I (-0.04 ml/min/1.73m2 ± 0.09 vs -0.26±0.25 ml/min/1.73m2 p=0.004, fig 1)
Multivariate analysis confirm that ACE-I confer renal benefits also in patients who have advanced CKD. High phosphate levels and 24h proteinuria were independent progression risk factors to dialysis. ACE-I was associated with a 31% reduction in the risk of the primary end point (tab 1).

Tab 1 Cox regression for dialysis start

	WALD	p	HAZARD	95% CI
ACE-I (yes)	6,7	0,013	0,69	**0,50-0,92**
AGE (years)	15,6	0,000	0,98	**0,97-0,99**
PO4 (mg/dl)	9,1	0,002	1,20	**1,10-1,30**
U-PROT (g/die)	**35,0**	**0,000**	**1,21**	**1,15-1,30**

Fig1 eGFR slope according to treatment with ACE-I.



CONCLUSIONS

Our study shows that treatment with ACE-I slows down the renal damage progression in patients with advanced CKD stage 5, allowing us to safely delay the start of dialysis treatment. High phosphate levels, 24h proteinuria and younger age were independent progression risk factors to dialysis.

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