SUBCLINICAL PERIPHERAL ARTERY DISEASE PREDICTS CARDIOVASCULAR EVENTS IN CHRONIC RENAL IMPAIRMENT: THE NEFRONA PROJECT

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INTRODUCTION

Cardiovascular events (CVE) are the main cause of death in all stages of chronic kidney disease (CKD).

Adequate tools to assess cardiovascular risk are still lacking in this population, but those that evaluate subclinical atheromatous load seem promising.

Peripheral artery disease (PAD), assessed by ankle-brachial index (ABI), is more frequent in CKD than in the general population, and some studies have shown that it might predict CVE.

The aim of this study is to evaluate the ability of silent PAD to predict CVE.

METHODS

NEFRONA is an observational prospective multicenter study. 2445 CKD patients without a previous cardiovascular history were included from 2010 to 2012 and will be followed for four years. Clinical and laboratory data were recorded, and carotid and femoral ultrasounds and ABI measurements were performed by a single expert team.

The modified ABI was chosen for its higher sensitivity: this is the most pathologic of the four measured values (right and left tibial and pedal indexes). ABI was considered pathologic if ≤0.9 or ≥1.4. A composite endpoint was defined as all cause mortality or CVE (acute myocardial infarct, ischemic stroke or PAD requiring surgical treatment).

Table 1. Factors significantly related to the composite end-point

Variable	CVE	No CVE	*p*
Age (years)	**63.86±9.62**	59.08±12.21	<0.001
Male sex (%)	**73.1**	60.6	0.002
Pulse pressure (mmHg)	**65.70±20.83**	61.78±17.94	0.024
Smoking (%)	**64.1**	55.1	0.029
Diabetes (%)	**40.4**	25.5	<0.001
Plaque pressence (%)	**91.7**	69.9	<0.001
Dialysis (%)	**42.3**	16.7	<0.001
Hemoglobin (g/dL)	12.37±1.92	**13.00±1.72**	<0.001
Transferrin (mg/dL)	201.98±47.21	**226.13±48.44**	<0.001
Ferritin (ng/mL)	**353.30±459.75**	219.60±267.00	0.001
Urea (mg/dL)	**113.26±57.08**	94.91±45.31	<0.001
LDL-cholesterol (mg/dL)	97.57±38.17	**103.67±33.25**	0.044
Albumin (g/dL)	3.88±0.54	**4.13±0.44**	<0.001
Phosphate (mg/dL)	**4.27±1.33**	3.89±0.98	0.001
Intact parathormone (pg/mL)	**218.44±229.09**	155.29±160.50	0.002

Fig 1. Event-free survival

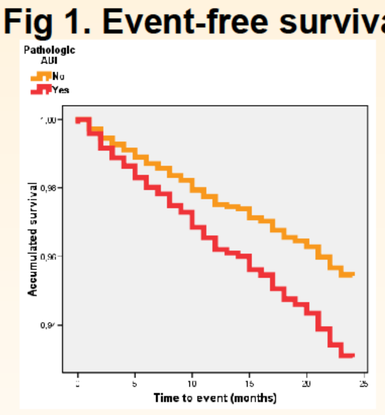

Table 2. Cox regression model for the end-point

Variable	Odd ratio	95% C. I.	*p*
Pathologic ABI	1.50	1.06 – 2.12	0.024
Dialysis	3.12	2.01 – 4.84	<0.001
Plaque pressence	2.16	1.14 – 4.11	0.019
Male sex	1.57	1.07 – 2.30	0.021
Diabetes	1.44	1.01 – 2.05	0.021
Age (years)	1.03	1.01 – 1.05	0.003
Albumin (g/dL)	0.50	0.35 – 0.71	<0.001

RESULTS

2048 patients were included in the study (397 patients underwent kidney transplantation or were lost for follow-up). Of these, 61.5% were male, mean age was 59.4±12.1 years, and CKD classification was stage 3 45.5%, stages 4-5 35.9% and dialysis 18.7%. Frequent comorbidities were hypertension (91.5%), dyslipidemia (68.6%) and diabetes (26.6%). Presence of atheromatous plaques was found in 71.5% of patients. The pathologic ABI prevalence was 28.9%.

The composite end-point occurred in 156 patients (7.6%) in the first 2 years of follow-up. Predicting factors in the bivariate analysis are summarized in **Table 1**.

In a multivariate Cox regression model including related variables, PAD maintained its predictive capacity for the composite endpoint (**Figure 1**). Other independent predictors were male sex, older age, dialysis treatment, atheromatous plaques, diabetes and lower albumin levels.

CONCLUSIONS

Asymptomatic PAD, defined as a pathologic ABI, is very prevalent in CKD patients, and is an independent predictor of all cause mortality and CVE. Male sex, older age, dialysis treatment, presence of atheromatous plaques, diabetes and lower albumin levels also predict this composite endpoint.

Ankle-brachial index measurement is an easy, inexpensive and harmless tool that can aid in a better evaluation of cardiovascular risk in CKD patients.

REFERENCES

Arroyo D, et al. **Observational multicenter study to evaluate the prevalence and prognosis of subclinical atheromatosis in a Spanish chronic kidney disease cohort: baseline data from the NEFRONA study**. BMC Nephrol, 2014;15:168.

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