

OCCURRENCE OF ISCHEMIC NEPHROPATHY IN PATIENTS WITH ATHEROSCLEROTIC LESIONS. RETROSPECTIVE STUDY

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INTRODUCTION AND AIMS

Ischemic renal disease (IRD) is caused by hemodynamically significant mono or bilateral renal artery stenosis. IRD is responsible for reduction of glomerular filtration rate (GFR) and/or loss of renal parenchyma. Clinical features can be renovascular hypertension and ischemic nephropathy. The exact prevalence of IRD is not well known since it is often asymptomatic. Therefore few patients are screened for IRD unless they become symptomatic. Ischemic nephropathy prevalence are based on autopsies and angiographic studies in patients with renovascular hypertension or atherosclerotic disease.

This study aimed at assessing the prevalence of IRD, defining its clinic characteristics, evaluating useful imaging procedures in a cohort of patients with chronic kidney disease not in dialysis (CKD) and atherosclerotic lesions.

METHODS

1607 CKD patients were retrospectively evaluated during the period 2008-2013 referred to the "Federico II" Department of Nephrology, Naples. Inclusion criteria were: CKD (I - V KDOQI stages), presence of atherosclerotic lesions anywhere in arterial tree. Kidney transplant recipients and patients with chronic kidney disease requiring dialysis were excluded.

Clinical characteristics (age, sex, blood pressure, body weight, BMI, height), medical history (previous cardiovascular events, history of familiar cardiovascular events, diabetes mellitus, hypertension), data of imaging procedures (angio-TC, angio-RM, color doppler ultrasound (US), renal scintigraphy, angiography, coronarography) were collected.

RESULTS 1

284 patients fulfilled inclusion criteria. Clinical characteristics are reported in Fig 1. Causes of CKD in the study cohort were: hypertension (16,9%), diabetes mellitus (13%), glomerulonephritis (10.9%), interstitial nephritis (3.2%), kidney stones (2.5%), polycystic kidney disease (1.8%), unknown (40%). IRD prevalence was 11,3 %.

The main imaging procedure used to detect renal artery stenosis was color-doppler US (71,9%) in IRD. Other imaging procedures were: angio TC (32%), renal scintigraphy (31%), renal angiography (15%), angio RM (12%). Compared to others, patients with IRD had higher prevalence of history of cardiovascular events in family (46.9% Vs 33.7%) (NS), dyslipidemia (84.4% vs 69%) (NS) and previous cardiovascular events (53.1% vs 32.1%) (NS). In contrast, presence of diabetes was lower (12.5% vs 36,5 %) (p=0,04) in CKD patients with IRD

RESULTS 2

The most imaging diagnostic test used to study atherosclerotic vasculopathy was echo-doppler of supra-aortic vessels (86%); it was positive for atherosclerotic lesion in 97% of CKD patient (Fig. 2). Renal and abdominal aortic color Doppler US and Renal scintigraphy were performed in few CKD patients without IRD : 34.3% , 22.1% 11.9% respectively. Renal color-doppler US and renal scintigraphy found renal artery stenosis in many cases (11% v.s. 4,7 %) of CKD patients without a diagnosis of CKD.

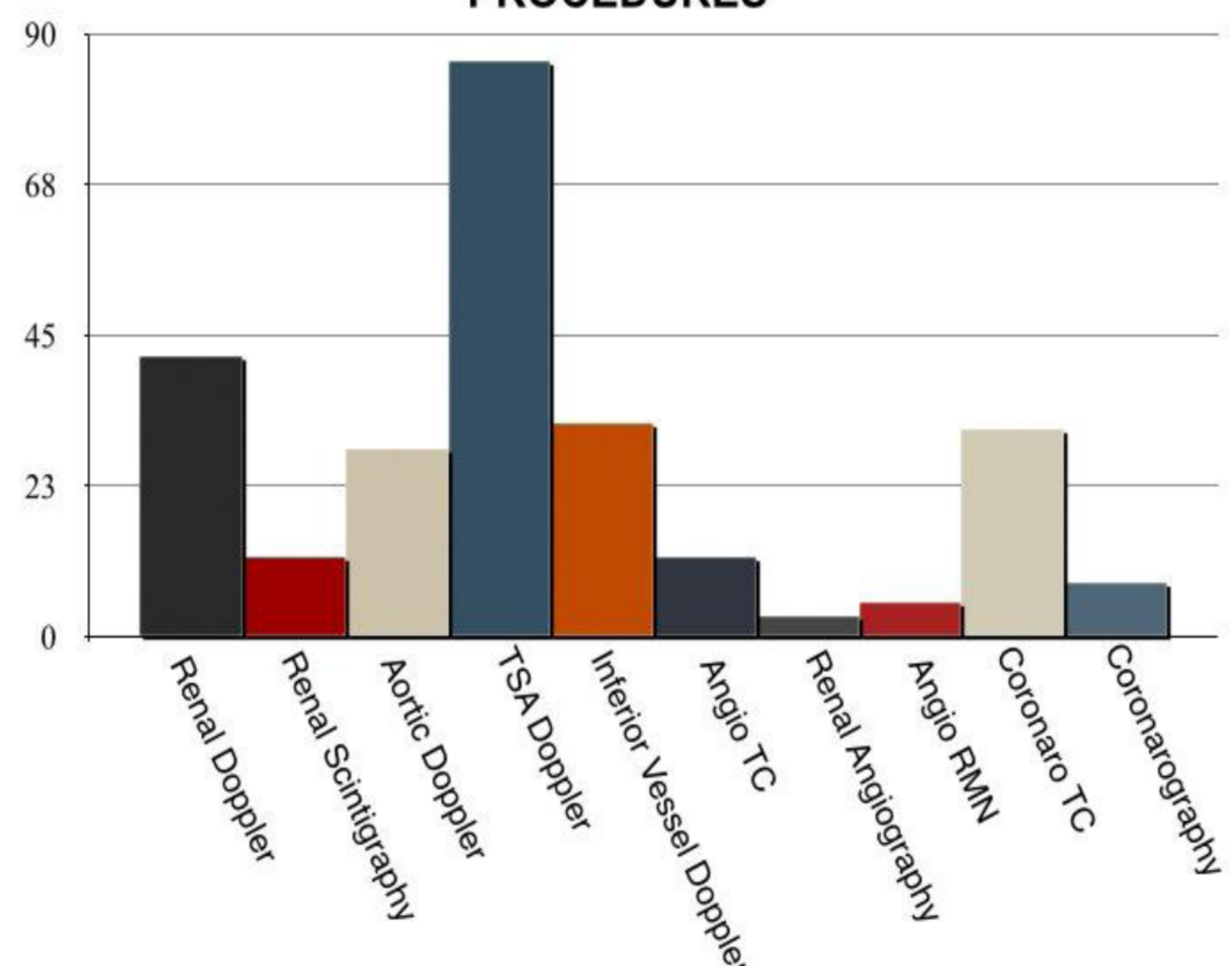
Fig.1

CLINICAL CHARACTERISTICS

	MEAN	Dev. standard		MEAN	Dev. standard
BMI	27,625	5,6076	Urinary protein (mg/24h)	515,47	1325,10
GFR (ml/min)	39,43	21,207	Uric Acid (mg/dl)	6,345	2,0984
Urea (mg/dl)	85,57	46,183	Total Cholesterol (mg/dl)	176,07	41,531
Creatinine (mg/dl)	2,526	1,8569	Triglycerides (mg/dl)	135,32	76,301
Sodium (mEq/l)	140,41	8,646	HDL Cholesterol (mg/dl)	48,22	15,281
Potassium (mEq/l)	4,807	0,6995	LDL Cholesterol (mg/dl)	101,15	35,642
Chloride (mEq/l)	104,42	4,189	Alkaline phosphatase (U/l)	87,46	46,888
Calcium (mg/dl)	9,290	0,6977	Fibrinogen (mg/dl)	422,89	133,877
Phosphorus (mg/dl)	3,668	0,8950	Systolic blood pressure (mmhg)	134,04	17,222
PTH (pg/ml)	105,52	93,887	Diastolic blood pressure (mmhg)	76,33	9,494
Hemoglobin (g/dl)	12,541	1,8627	Mean blood pressure (mmhg)	95,84	10,496
Iron (mg/dl)	72,74	32,674			
Total Protein (g/dl)	6,899	0,8531			

Fig.2

PROCEDURES



CONCLUSIONS

The present study shows that the IRD is frequently misdiagnosed. More careful evaluation should be performed among patients with not well defined cause of CKD and concomitant presence of atherosclerotic lesions on arterial tree. Color-doppler US is the most useful imaging procedure to identify IRD.

