

PROCALCITONIN AS AN EARLY PREDICTOR FOR ACUTE INFECTION IN HEMODIALYSIS PATIENTS.

Borja Quiroga¹, Maite Villaverde², Soraya Abad¹, Almudena Vega¹, Javier Reque¹, Claudia Yuste¹, Daniel Barraca¹, Ana Pérez de José¹, Juan M. López-Gómez¹.

1 Nephrology Unit. Hospital General Universitario Gregorio Marañón (Madrid, Spain).
2 Clínica Dialcentro (Madrid, Spain)



OBJECTIVES

The aim of the present study was to assess the power of procalcitonin for detecting acute infections in hemodialysis patients over other known inflammatory markers as albumin or C-reactive protein.

METHODS

A 211 prevalent HD patient (median age 73 (60-80) years, 58% male) prospective study was conducted between 2005 and 2012.

Serum samples were defrosted and patients followed-up for 40±25(0-84) months.

Basally, demographic, analytic and echocardiography values were recorded.

During follow-up, all kind of infections were collected and analyzed.

Baseline characteristics

Value	
Age (years)	73 (60-80)*
Sex male/female (%)	58/42
CKD etiology (%)	
- Diabetes mellitus	23.2
- Glomerulonephritis	20.9
- Vascular nephropathy	9.5
- Interstitial nephropathy	13.7
- PKD	12.3
- Others	3.8
- Unknown etiology	16.6
History of heart disease (%)	43
Diabetes mellitus (%)	32.2
Peripheral vascular disease (%)	30.3
Hypertension (%)	87.2
Dyslipidemia (%)	58.3
Vascular access (%)	
- Autologous	54.8
- PTFE	31.0
- Catheter	14.3
Renal graft carrier (%)	9.5
Dialysis vintage (months)	83 (43-128)*
CRP (mg/L)	7.0 (4.0-15.0)*
Procalcitonin (mcg/L)	0.6 (0.3-1)*
Albumin (g/dL)	4.2 (4.0-4.5)*

*Median (interquartile range). Abbreviations: Chronic kidney disease (CKD), Polycystic disease (PKD), polytetrafluoroethylene (PTFE), C-reactive protein (CRP).

RESULTS

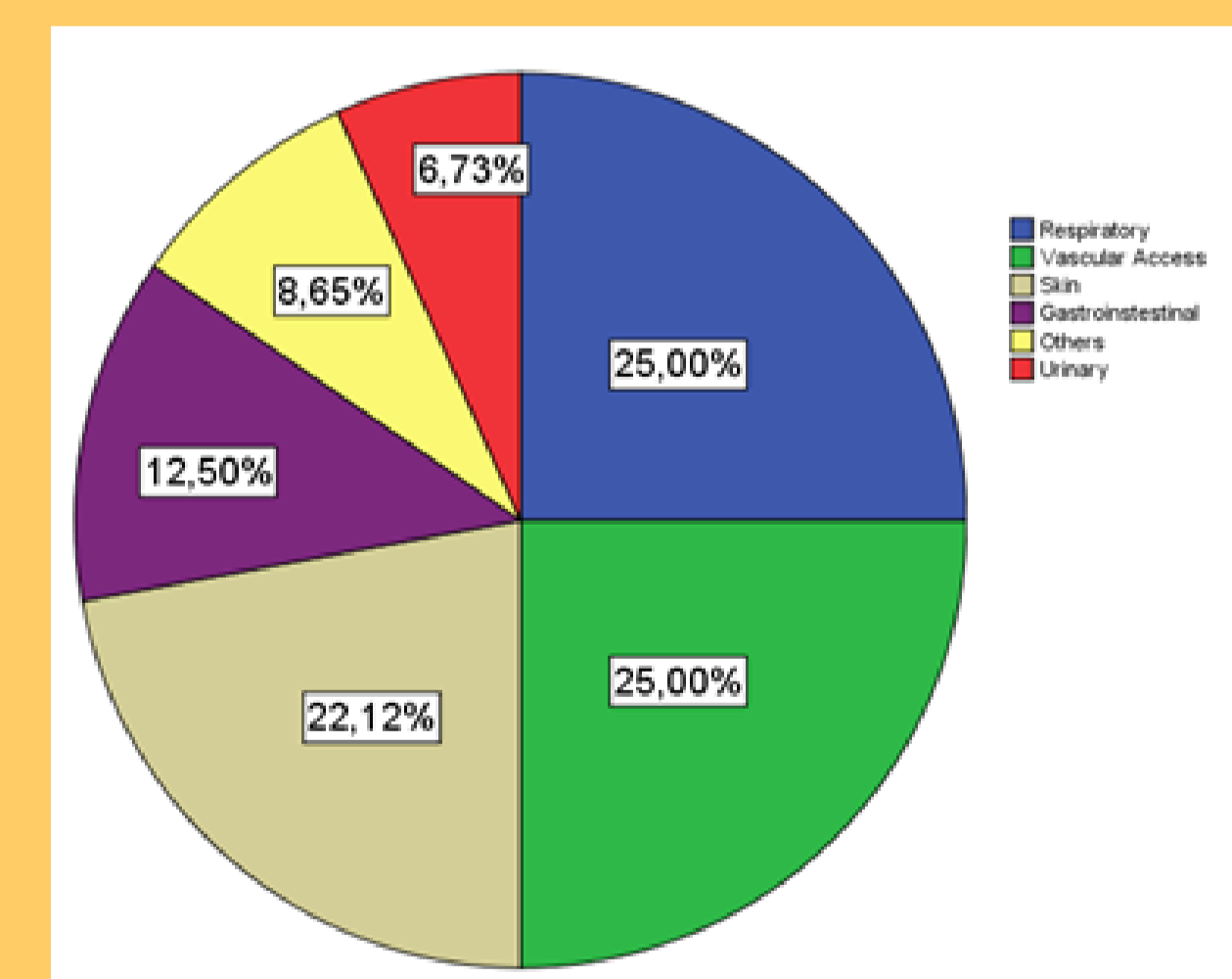
Univariate and Cox regression for inflammatory markers (above and over their respective medians) predicting infection at first month.

	Unadjusted model			Adjusted model*		
	Exp (Beta)	HR (95%CI)	P	Exp (Beta)	HR (95%CI)	P
CRP	1.034	0.278-3.852	0.960			
Procalcitonin	4.878	1.013-23.49	0.048	11.799	1.407-98.95	0.023
Albumin	2.019	0.452-9.021	0.358			

*Adjusted for age, sex, albumin and CRP.

Unadjusted models predicting infection at fourth month

	Unadjusted model at 4 months			Unadjusted model during follow-up		
	Exp (Beta)	HR (95%CI)	P	Exp (Beta)	HR (95%CI)	P
CRP	1.146	0.461-2.848	0.770	1.754	1.177-2.615	0.006
Procalcitonin	1.321	0.537-3.253	0.544	1.004	0.683-1.475	0.985
Albumin	1.219	0.454-3.274	0.694	0.915	0.581-1.440	0.700



Infections during follow-up.

CONCLUSIONS

In conclusion, procalcitonin is the best studied biomarker for acute infection in hemodialysis patients. CRP reflects chronic inflammation, is related to vascular access, and can be useful as a stratifying tool for detecting patients at high risk for long-term infections.

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