

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

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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

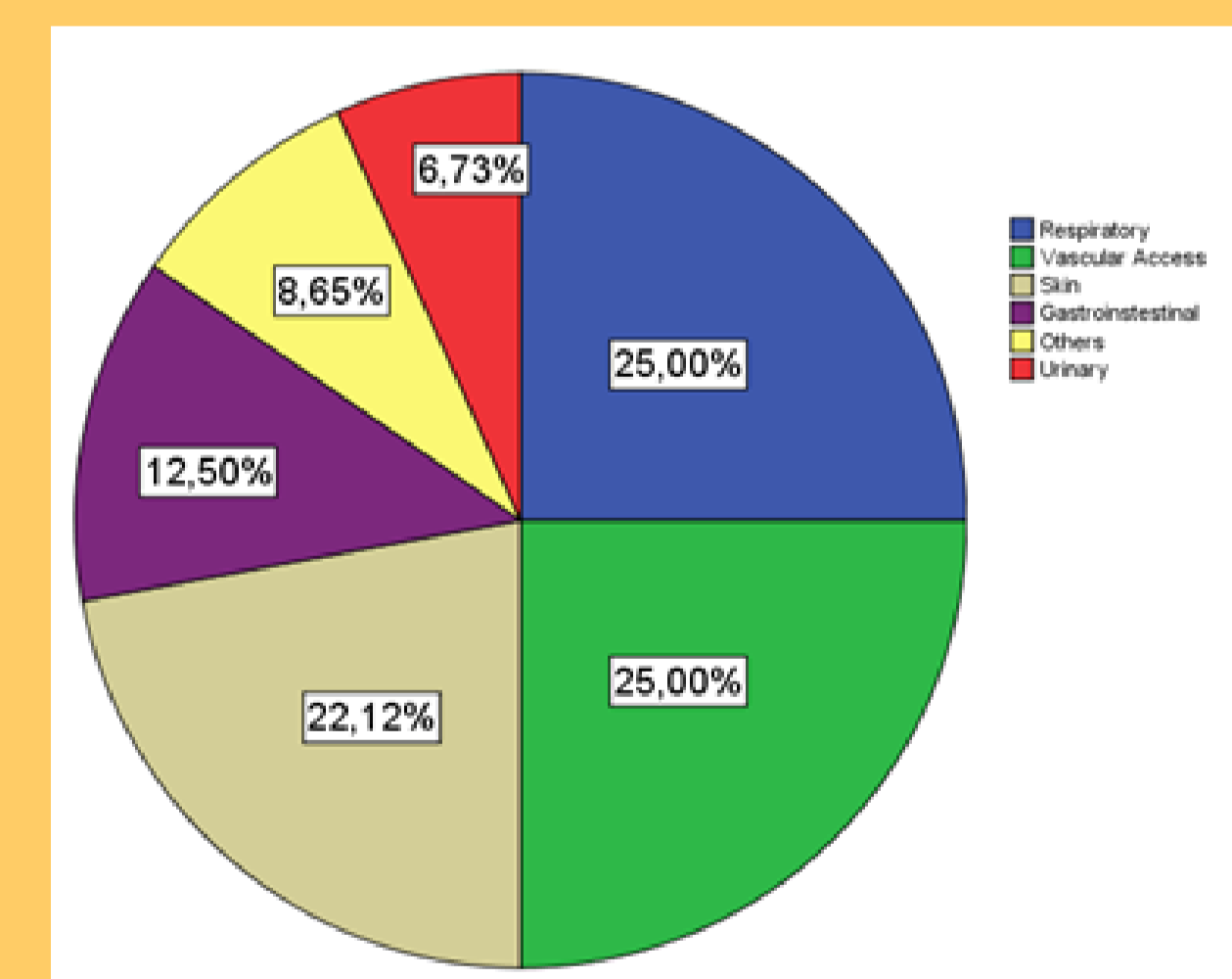
Univariate and Cox regression for inflammatory markers (above and over their respective medians) predicting infection at first month.

	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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