



HYPOMAGNESEMIA AND ALL-CAUSE AND CARDIOVASCULAR MORTALITY IN HEMODYALYSIS PATIENTS: ROLE OF INFLAMMATION

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INTRODUCTION AND AIMS

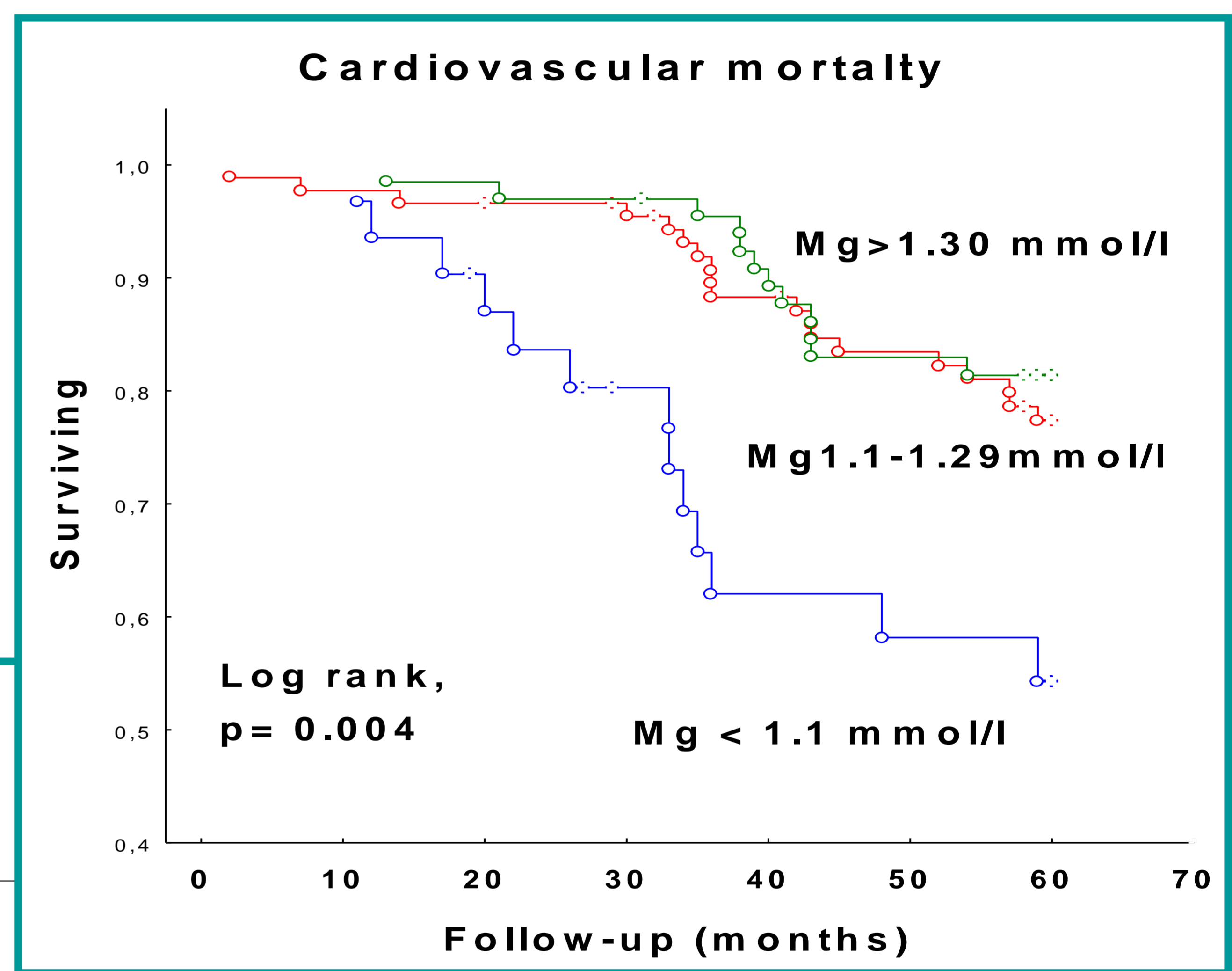
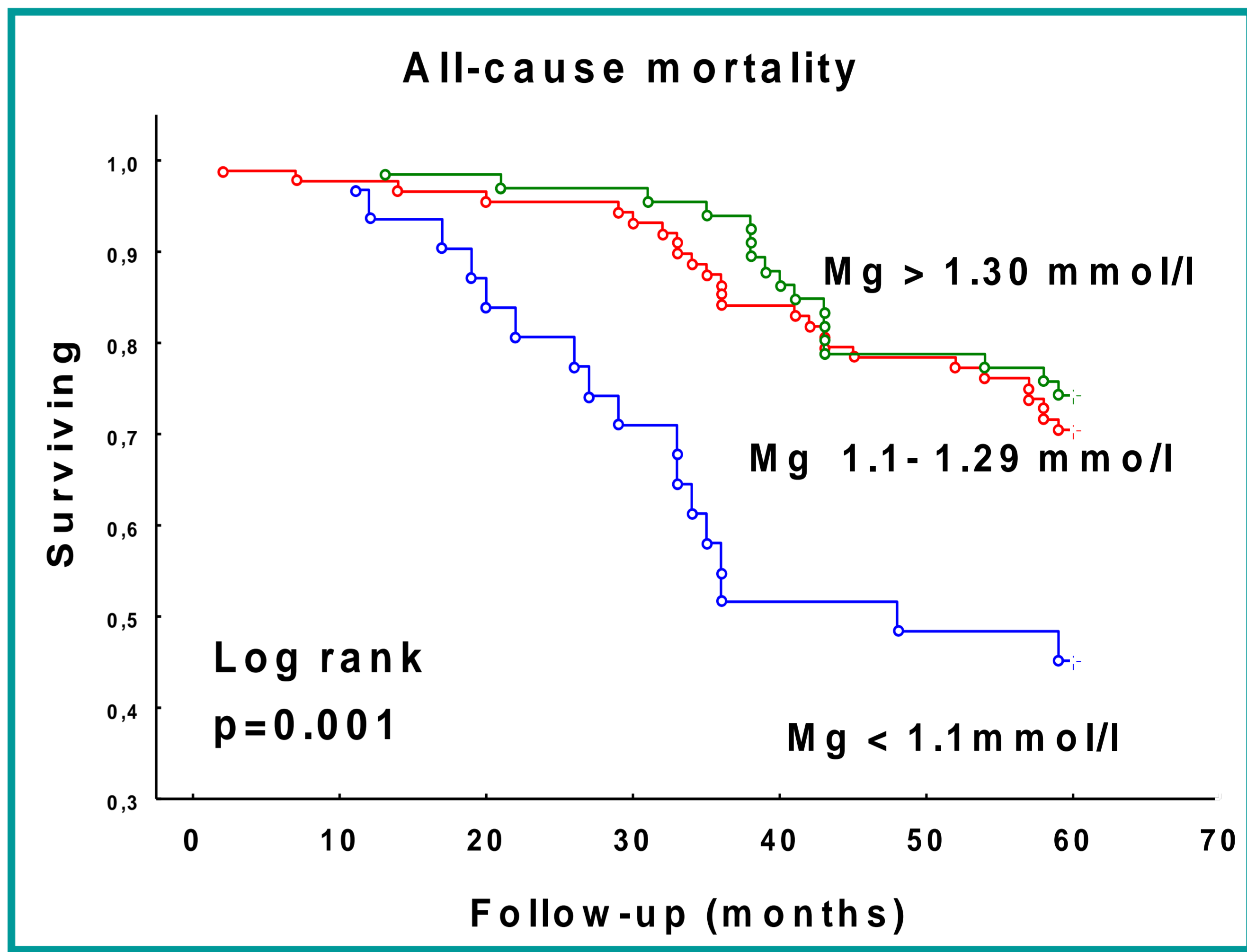
- Low serum magnesium (Mg) levels in hemodialysis (HD) patients have been linked to increased mortality.
- The aim of this prospective study was to evaluate associations between serum Mg levels and C reactive protein (CRP) as a marker of inflammation to predict all-cause and cardiovascular mortality in HD patients.

METHODS

- We studied a cohort of 185 prevalent HD patients (mean age of 49.74±14.71 years, mean HD vintage 99.86±65.73 months, diabetes 17.3%) receiving thrice-weekly HD treatment, with a dialysate Mg concentration of 0.5mmol/l.
- Patients were categorized into three groups according to the serum Mg levels (lower Mg group, Mg<1.1mmol/l; intermediate Mg group, Mg between ≥1.1 to <1.29 mmol/l and higher Mg group, Mg ≥ 1.30 ml/l).
- Study outcomes were five-year all-cause and cardiovascular mortality.

RESULTS

- During the 5-year follow-up, 60 out of 185 patients (32.4%) had died, most from CVD (73.3%).
- Mortality analyses between three groups showed that all cause (log rank, p=0.001) and CV mortality (log rank, p=0.004) were significantly higher in the lower Mg group compared to that in the intermediate and higher Mg group.



Tabl 1. Characteristics of the hemodialysis patients according to serum Mg concentration

	Mg <1.1	Mg ≥1.11- <1.29l	Mg ≥ 1.30	p
Hb (g/l)	98.28 ± 14.31	108.78 ±10.25	108.43 ± 10.99	0,000
sCr (µmol/l)	850.80 ± 236.15	925.02 ±199.07	956.48 ± 161.52	0.041
CRP (mg/l)	32.17 ± 40.54	14.84 ±34.97	16.81 ± 26.45	0.003
LVMI (g/m ²)	164.41 ± 77.79	134.14 ± 46.17	139.01 ± 42.79	0.005

Hb-hemoglobin; sCr- creatinine; LVMI-left ventricular mass index



Tabl 2. Hazard ratio of death during the 5-year follow-up study according to serum Mg levels

	HR	p	95%CI
All-cause mortality			
Mg<1.1vs >1.1<1.30	2.55	0.003	1.38-4.71
Mg >1.3 vs >1.1<1.30	0.84	0.57	0.45-1.54
Cardiovascular mortality			
Mg<1.1vs >1.1<1.30	2.67	0.006	1.32-5.42
Mg >1.3 vs >1.1<1.30	0.81	0.56	0.39-1.66

Tabl 3. Association of Mg with mortality risk in subgroups with and without inflammation

	CRP<10 mg/l			CRP>10 mg/l		
	HR	p	95%CI	HR	p	95%CI
All-cause mortality						
Mg<1.1vs >1.1<1.30	2.51	0.19	0.63-10.03	1.96	0.04	0.98-3.90
Mg>1.3 vs >1.1<1.30	1.06	0.92	0.33-3.49	0.78	0.50	0.39-1.60
Cardiovascular mortality						
Mg<1.1vs >1.1<1.30	1.68	0.52	0.34-8.35	2.39	0.03	1.06-5.36
Mg>1.3 vs >1.1<1.30	0.86	0.81	0.24-3.03	0.80	0.62	0.33-1.93

This study showed that hypomagnesemia significantly modified the mortality risk associated with inflammation in HD patients. Interventional studies are warranted to examine whether correction of hypomagnesaemia is beneficial for improving patients prognosis