

# STUDY ON THE RELATIONSHIP BETWEEN THE ADIPOSE TISSUE CYTOKINES LEPTIN AND ADIPONECTIN AND ALL-CAUSE MORTALITY IN PERITONEAL DIALYSIS PATIENTS

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## Background

The effects of serum leptin and adiponectin on the clinical outcome in patients with end-stage renal disease (ESRD) are unclear. We investigated the associations of these two cytokines with the clinical outcome of peritoneal dialysis (PD).

## Methods

### Patient population

In a prospective observation study, we evaluated 81 patients on PD. Patients were enrolled in the study: If the patients

- (i) were more than 18 years of age
- (ii) had been on PD for at least 3 months
- (iii) had experienced no overt infections during the 3 months before the start of the study
- (iv) had no history of malignancy or another chronic inflammatory disease
- (v) agreed to participate in the study.

### Follow-up and endpoint

Patients were prospectively followed from September 2009 to November 2013 or until death or transfer to an alternative dialysis method. The dates of transfer to HD, renal transplantation, and death were defined as the endpoints. Mortality within 3 months of dialysis modality change was considered PD-related. Patients who were transferred to HD or who received a kidney graft were censored in the survival analysis

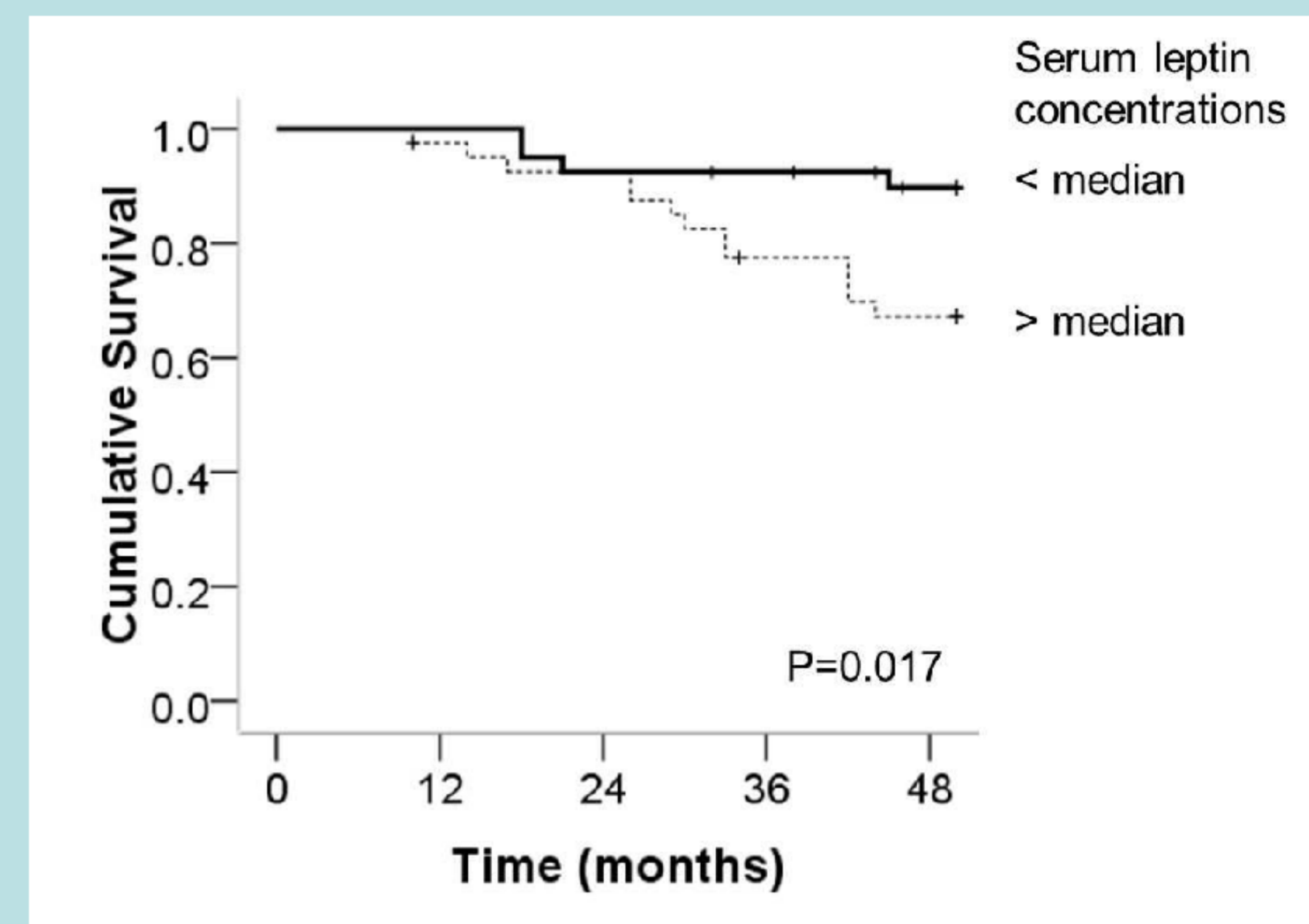
## Results

**Table 1. Characteristics of patients**

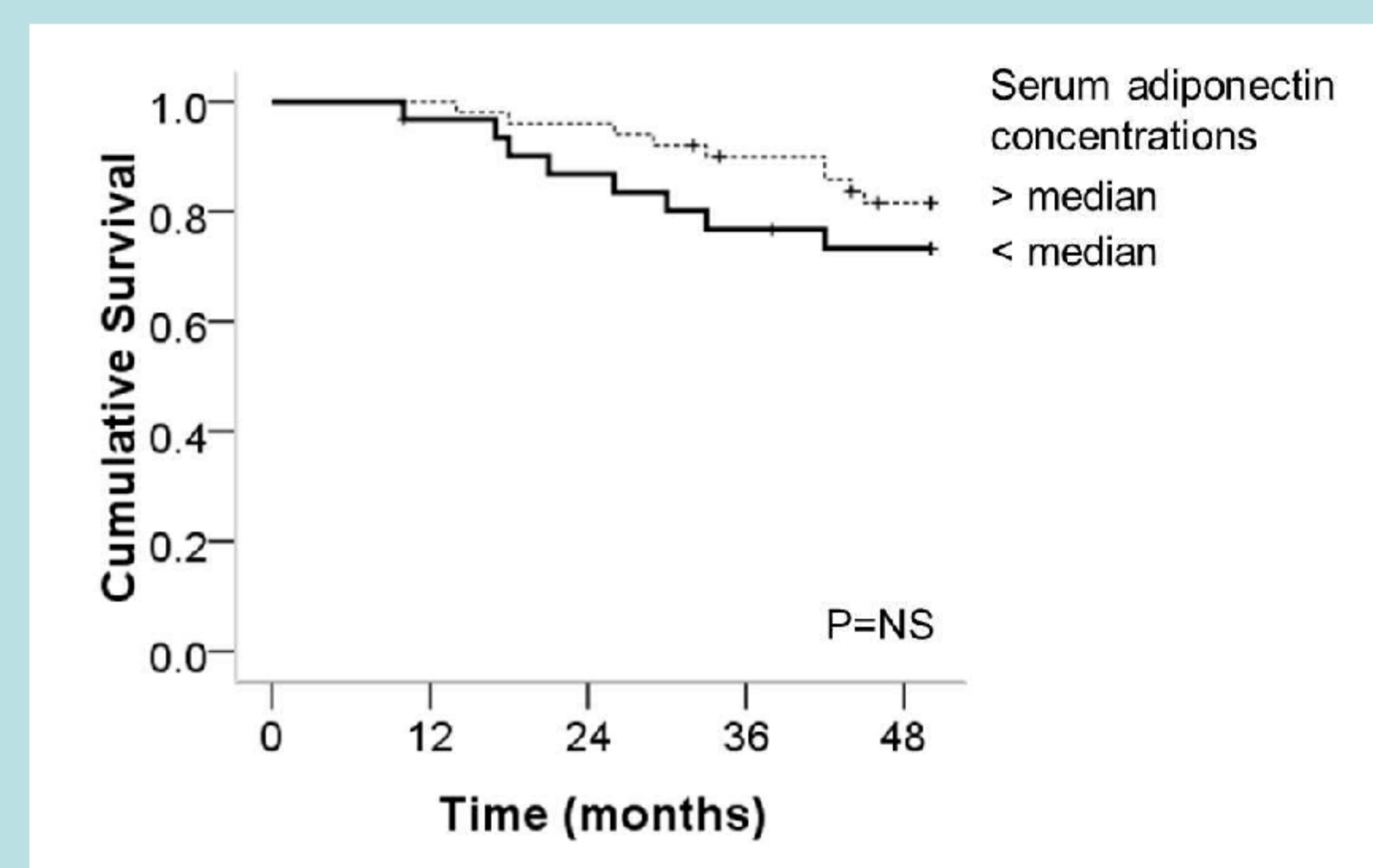
Variable	Leptin < median (N=40)	Leptin > median (N=41)
Age (year)	45.5 ± 13.8	53.2 ± 10.9**
Sex (male %)	34 (85%)	19 (46.3%)**
Dialysis duration (months)	93.8 ± 43.2	74.7 ± 30.0*
Diabetes (%)	9 (22.5%)	21 (51.2%)*
Height (cm)	165.8 ± 7.5	161.4 ± 10.0*
Weight (kg)	61.4 ± 9.7	64.7 ± 14.2
Systolic BP (mmHg)	138.5 ± 19.8	139.6 ± 17.4
Diastolic BP (mmHg)	77.2 ± 13.1	78.0 ± 12.5
Laboratory		
Hemoglobin (g/dL)	10.3 ± 1.5	10.8 ± 1.2
Hematocrit (%)	30.5 ± 4.7	31.9 ± 3.5
Protein (g/dL)	6.2 ± 0.5	6.8 ± 0.6**
Albumin (g/dL)	4.0 ± 3.4	3.6 ± 0.4
TC (mg/dL)	171.5 ± 31.7	195.5 ± 48.6*
Calcium (mg/dL)	8.3 ± 0.7	8.7 ± 0.8*
Phosphorus (mg/dL)	5.2 ± 1.7	4.8 ± 1.2
hsCRP (mg/dL)	0.3 ± 0.5	0.2 ± 0.3
Intact PTH (pg/mL)	349.0 ± 372.2	246.3 ± 227.3
Fe	100.1 ± 44.3	116.5 ± 141.3
TIBC	274.5 ± 40.7	297.4 ± 41.6*
Ferritin	469.2 ± 896.6	263.5 ± 265.5
Leptin (ng/ml)	5.7 ± 3.8	63.3 ± 36.4**
Adiponectin (mcg/ml)	25.1 ± 12.8	21.0 ± 7.5
IL-6 (ng/ml)	3.3 ± 1.2	4.3 ± 2.9
All-cause deaths	4 (10%)	13 (31.7%)*

\* P < 0.05; \*\* P < 0.01

**Figure 1. Kaplan-Meier survival analysis for all-cause mortality in 81 PD patients stratified according to the serum leptin concentrations**



**Figure 2. Kaplan-Meier survival analysis for all-cause mortality in 81 PD patients stratified according to the serum adiponectin concentrations**



**Table 2. Hazard ratios (HRs) and 95% confidence intervals (CIs) for mortality by multivariate Cox proportional hazards analysis**

Variable	HR	95% CI	p
Age (year)	1.06	0.97 to 1.15	0.197
Sex (Male)	1.52	0.28 to 8.36	0.628
Diabetes	4.85	0.77 to 30.5	0.093
Leptin > median (vs. < median)	6.78	0.64 to 71.54	0.112
Hemoglobin (g/dL)	0.85	0.34 to 2.09	0.719
Albumin (g/dL)	0.28	0.04 to 1.85	0.185
hsCRP (mg/dL)	2.73	1.04 to 31.51	0.045
Systolic BP (mmHg)	1.04	0.99 to 1.10	0.148

## Conclusion

The results suggest that the serum leptin and adiponectin levels are not related to all-cause mortality in patients with PD and are not risk factors for mortality.

