

Low serum uric acid level predict all-cause and cardiovascular mortality in hemodialysis patients: 5 year follow-up analysis

G.Selim, O.Stojceva-Taneva, L.Tozija, P.Dzekova-Vidimliski, L.Trajceska, S.Gelev, Z. Petronievic, A.Sikole

University Clinic of Nephrology, University "Sts. Cyril and Methodius" Skopje, R. Macedonia



INTRODUCTION AND AIMS

❖ Although elevated serum uric acid (UA) is associated with increased cardiovascular (CV) risk in the general population, the relationship between serum UA and mortality risk in patients on hemodialysis (HD) has been poorly investigated.

❖ Our study investigated the influence of serum UA levels on mortality in HD patients with with five year follow-up analysis.

METHODS

❖ We studied a cohort of 223 prevalent HD patients (mean age 48.96±15.06 years, HD vintage 105.96±72.38 months, diabetes 16.6%) receiving thrice-weekly HD treatment.

❖ The mean values of minimum twelve serum UA measurements during the six months before follow-up were used for analysis.

❖ Patients were divided into two groups according to the median serum UA levels: a lower UA group (UA<410µmol/l) and a higher UA group (UA≥410µmol/l) and were prospectively followed up for 60 months.

RESULTS

❖ During the follow-up, 80 out of 223 patients (35.9%) had died, most from CVD (70%). The mean serum UA level was 424.61±59.06 µmol/L (range 294- 619.8µmol/L).

❖ The serum UA level of the survivors (431.99±58.34µmol/l) was significantly higher than patients died of all-cause (411.43±58.39µmol/l; p=0.012) and CV causes (406.72±58.60µmol/l; p=0.008)

❖ Patients with diabetes and CV disease had significantly low serum UA than those of the patients who did not have diabetes and CV disease (392.77±54.13 vs 431.15±58.02, p=0.000; 410.97±59.49 vs 437.19±56.02, p=0.000).

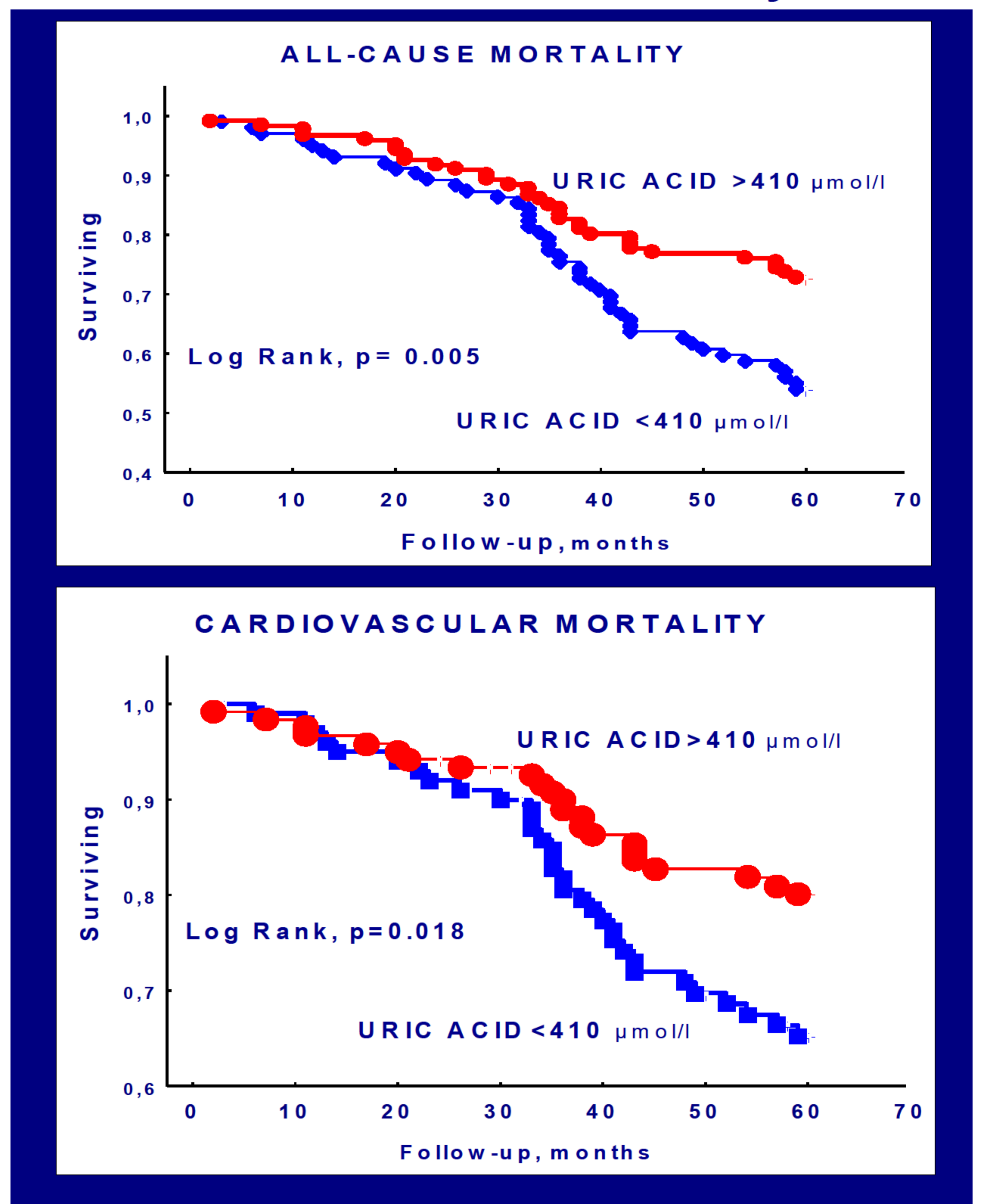
❖ High serum UA was associated with younger age, higher body mass index /BMI/, hemoglobin, serum creatinine, albumin, serum phosphorus, blood urea nitrogen /BUN/, and lower pulse pressure /PP/ and left ventricular mass index /LVMI/. Tabl.1

❖ Kaplan-Meier analysis showed that all cause and CV mortality were significantly higher in the lower serum UA group, compared to that in the higher UA group

Tabl 1.Characteristics of the hemodialysis patients according to serum uric acid (UA) concentration

	UA<410 µmol/l No=102	UA≥410 µmol/l No=121	p
Age, years	53.44 ± 14.36	45.17 ± 14.64	0,000
BMI, kg/m ²	23.18 ± 3.48	24.72 ± 4.78	0.007
PP, mmHg	57.00 ± 16.24	52.73 ± 13.11	0,031
Hemoglobin, g/l	104.14 ± 13.58	109,16 ± 11.45	0,003
BUN, mmol/l	28.33 ±3.64	29.99 ± 3.41	0.000
Creatinine, µmol/l	829.43 ± 162.36	996.18 ± 204.64	0.000
Phosphorus, mmol/l	1.44 ± 0.36	1.54 ± 0.33	0.038
Albumin, /g//l	37.86 ± 3.39	39.02 ± 2.97	0.006
LVMI, g/m ²	152,61 ± 57.42	129,15 ± 41.81	0.002

URIC ACID and mortality



❖ THE LOWER THE URIC ACID - THE HIGHER THE MORTALITY

This study showed that lower uric acid levels (UA<410 µmol/L) were associated with higher risk of all-cause and CV mortality in the HD population. These results are in contrast to published literature in the general population and should be the subject of future investigations.

