

Reverse Epidemiology of Lipoprotein(A) Concentration in Older Patients on Hemodialysis

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Background

- In patients with advanced chronic renal insufficiency the plasma level of Lipoprotein(a) (Lp(a)) increases as their kidney disease deteriorates.
- Once on hemodialysis, a further rise is expected due to inhibition of the catabolism of Lp(a).
- Many studies showed an association of Lp(a) levels with cardiovascular events, both in the general population and in younger hemodialysis patients.

Aim

- To check the association between Lp(a) and overall mortality in a group of patients treated with prolonged-time (5-8 hours) hemodialysis.

Methods

- This is a post hoc analysis of the prospective study evaluating the effect of membrane permeability on cardiovascular risk factors¹, enrolling 168 patients on prolonged-time hemodialysis.
- After the completion of the 21-month study, patients were followed-up until October 31, 2015.
- The main statistical analysis is based on Cox proportional hazard model evaluating the association of Lp(a) levels categorized as lower or higher than the median (11.5 mg/dL) with overall mortality, considering age, gender, comorbidities, CRP and albumin levels as covariates.
- Patients were censored in case of kidney transplantation or transfer to another dialysis unit or at the study end.

Results

- Median age was 72.3 years (IQR 60.0-78.1) and 43.7% were females.
- At the study baseline, patients were on dialysis since a median of 2.26 years (IQR 0.64-5.24).
- Median Lp(a) concentration was 10.8 mg/dL (IQR 5.0-26.1).
- The proportion of patients with Lp(a) \leq 11.5 mg/dL was significantly greater in those with peripheral vascular disease (81.7% vs. 47.9%) and in those with CRP greater than 10 mg/L (58.1% vs. 42.7%).
- Lp(a) concentration greater than 11.5 mg/dL was associated with decreased all-cause mortality in the patients older than 65 years (HR 0.55, 95% CI 0.33-0.90, $p=0.016$) (Figure 1), but was not significant in the population as a whole or in the younger subgroup.
- No correlation was found between Lp(a) and nutritional indicators such as serum albumin and nPNA.

Conclusion

- In this cohort of elderly patients on dialysis for over 2 years, Lp(a) levels were found to relate to outcome in a direction that is opposite to that observed in the general population.
- Our findings also support the hypothesis that Lp(a) may have behaved as a negative acute-phase protein.
- Further studies are required to clarify the prognostic value of Lp(a) in dialysis patients.

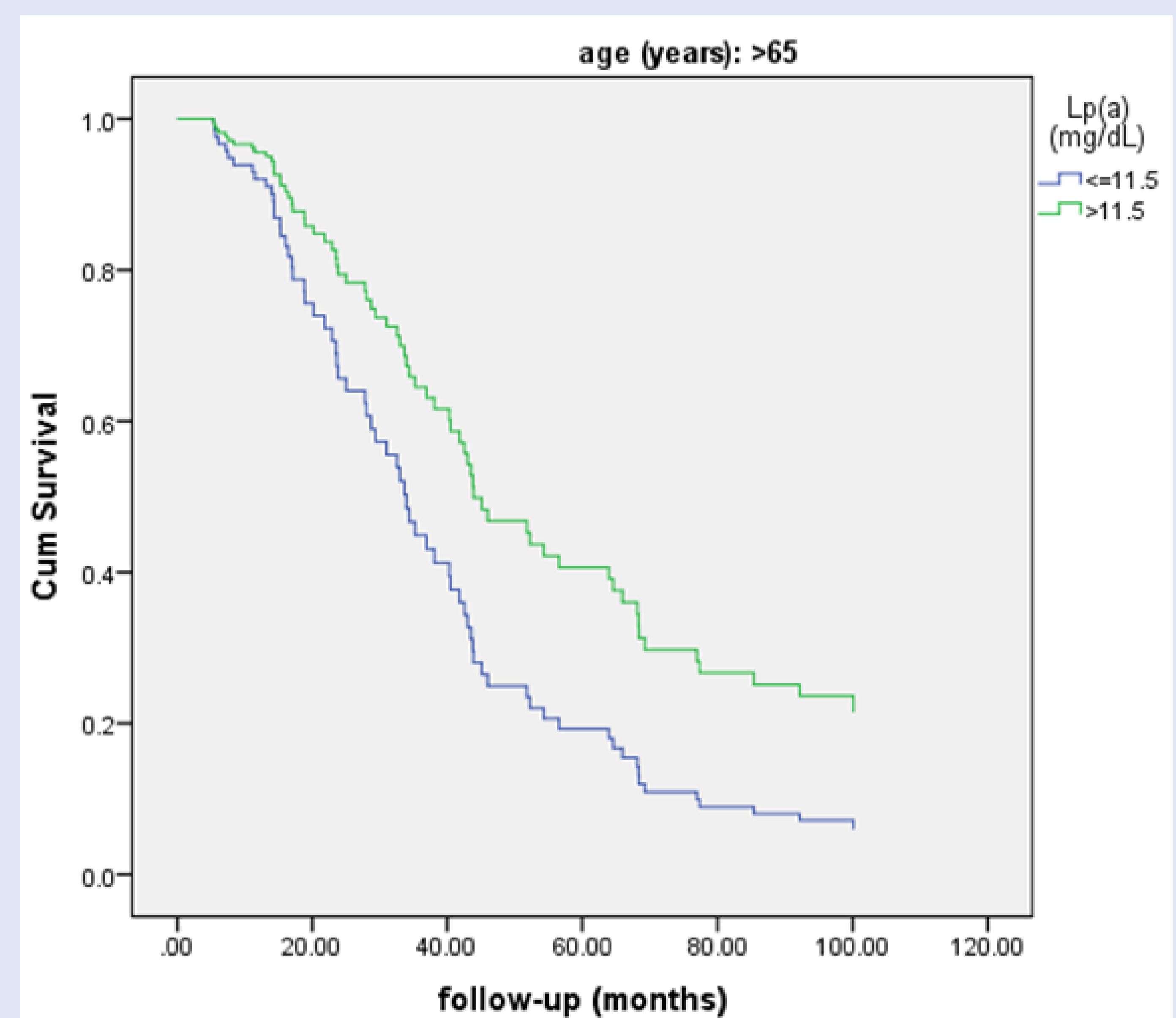


Figure 1. Cumulative survival curve by concentration of Lp(a) in patients older than 65 years

References

1. Chazot C. et al. Effect of membrane permeability on cardiovascular risk factors and β_2 m plasma levels in patients on long-term haemodialysis: a randomised crossover trial. *Nephron* 2015;129:269-275.

