

# Association of Dietary Potassium Intake with Mortality in Hemodialysis Patients

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## INTRODUCTION

- Hyperkalemia has been associated with higher mortality in maintenance hemodialysis (MHD) patients.
- Higher dietary potassium intake is a potential contributor to hyperkalemia in MHD patients.
- There are little data concerning the relationship between dietary potassium intake and outcome.
- We hypothesized that higher intake of dietary potassium is associated with increased death risk and poor outcomes in MHD patients.

## METHODOLOGY

- 224 MHD patients from 8 DaVita dialysis clinics in Southern California were studied during the "Nutritional & Inflammatory Evaluation of Dialysis Patients" (NIED Study).
- Patients were followed for 5 years (10/2001-12/2006).
- Dietary potassium intake from reported food items was estimated from the Block's Food Frequency Questionnaire (FFQ) at the start of the study.
- Unadjusted and case-mix-adjusted death hazard ratios and 95% confidence intervals (CI) were estimated using Cox proportional hazard models.
- We employed Cox regression based survival models to examine the association of LBM and FM with 5-year survival in the MHD patients cohort, adjusted for case-mix and other pertinent variables including surrogate of malnutrition-inflammation complex syndrome (MICS).

## RESULTS

- Greater dietary potassium intake was associated with significantly increased death hazard ratios in the unadjusted models and after incremental adjustments for case-mix, nutritional factors (including three-month averaged predialysis serum creatinine, potassium and phosphorus, body mass index, normalized protein nitrogen appearance, and energy, protein and phosphorus intake) and inflammatory markers.
- Figure 1 shows a Spline model with 95% CI reflecting adjusted mortality predictability of potassium intake, expressed as a percentile of the average dietary potassium intake.

Adjusted for case mix, serum potassium and intakes of energy, protein and phosphorus

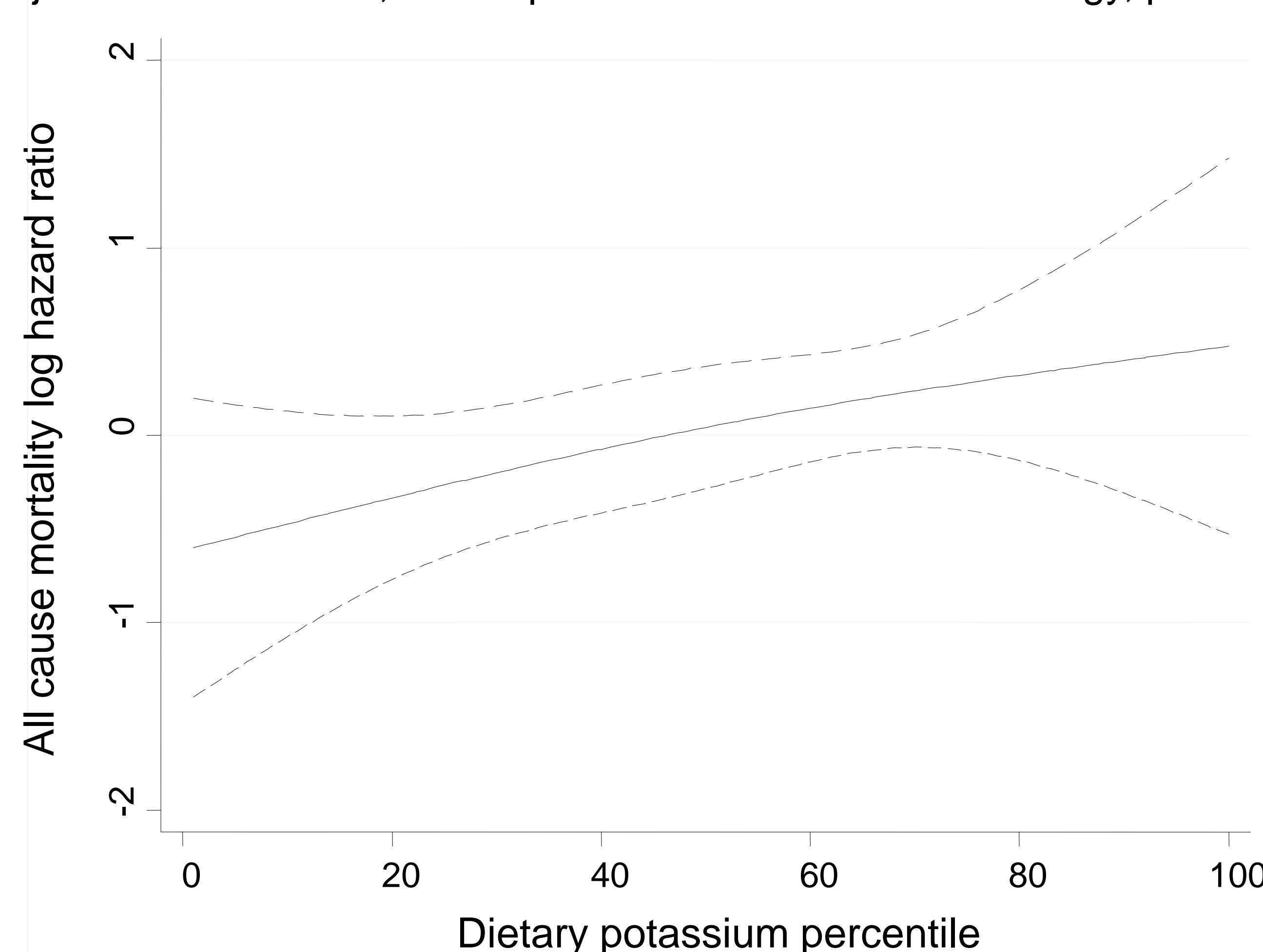


Figure 1. Adjusted Mortality Predictability of Potassium Intake

## CONCLUSIONS

- Higher dietary potassium intake, which may correlate with other factors related to poor compliance, is associated with increased death risk in MHD patients, even after adjustments for serum potassium and dietary protein, energy and phosphorus intake.
- The potential role of dietary potassium in the high mortality rate of HD patients warrants clinical trials.

## KEY LEARNINGS

- ✓ In MHD patients higher dietary potassium intake is associated with greater death risk in a strictly linear and incremental format.
- ✓ If dietary intervention and counseling can decrease the amount of dietary potassium intake in MHD patients, it is possible that survival can be improved, but this hypothesis need to be proven in randomized controlled trials.