

Association of Dietary Phosphorus to Protein Ratio with Mortality in Hemodialysis Patients

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INTRODUCTION

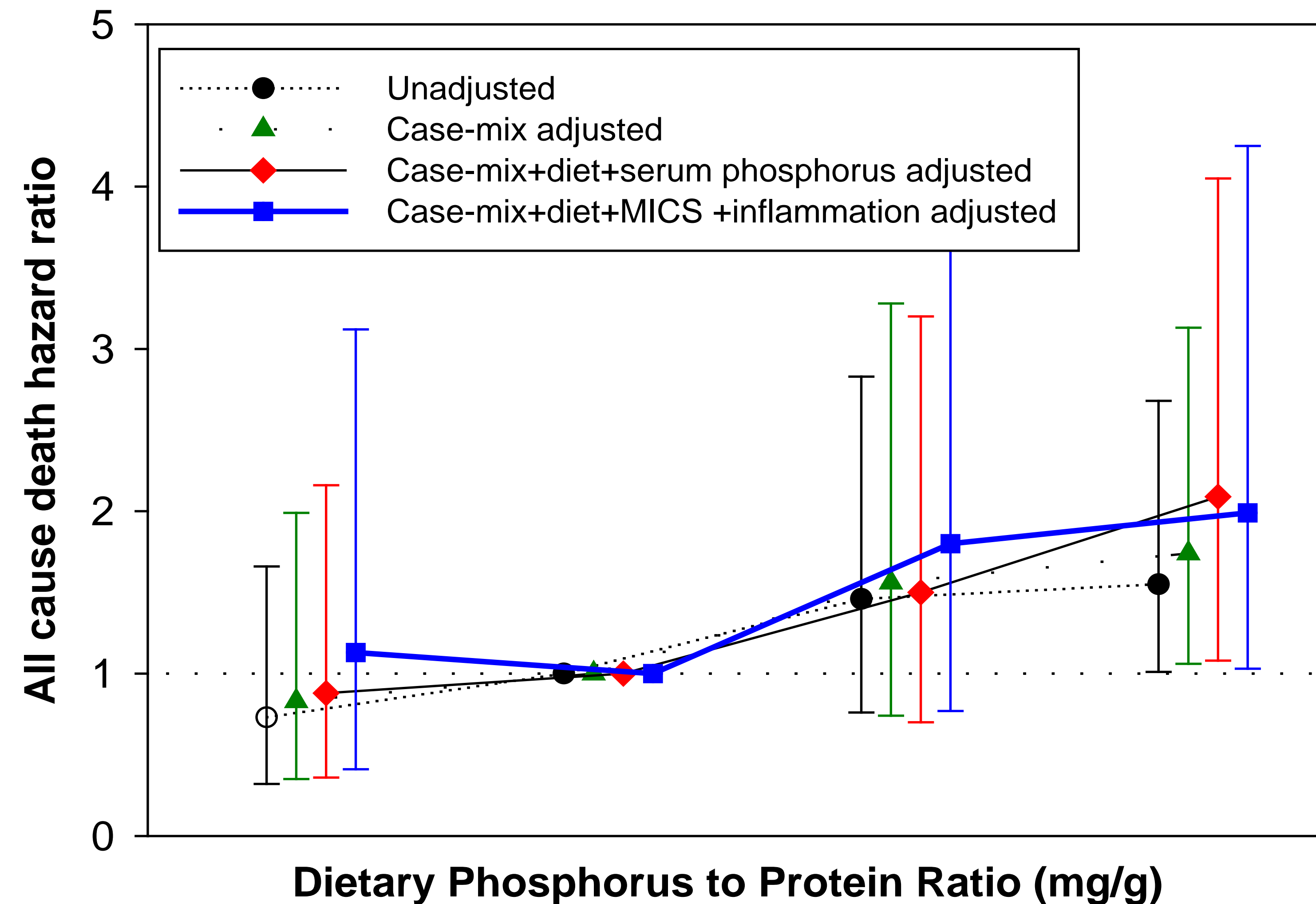
- Epidemiologic studies show an association between higher pre-dialysis serum phosphorus and death risk in maintenance hemodialysis (MHD) patients.
- Dietary protein intake is a major source of phosphorus and an important predictor of survival.
- There are little data about the association of the ratio of dietary phosphorus to protein on outcomes.

METHODOLOGY

- We examined 5-year (2001-06) survival predictability of dietary phosphorus to protein (P/P) ratio, estimated from the Block's food frequency questionnaires, at the start of a cohort of 224 MHD patients.
- Block's *Food Frequency Questionnaires* (FFQ) were used to assess dietary intake during first 6 months of the study.
- Case-mix adjustments included age, sex, race, comorbidity, vintage, insurance, marital, smoking, Kt/V. Nutritional status and MICS adjustments (Diet/MICS) included: protein, energy and K intakes, BMI, EPO dose, serum albumin, creatinine, calcium, P and ferritin, TIBC, hemoglobin, WBC, % lymphocytes, nPNA. Inflammatory adjustments: CRP, IL-6 and TNF-alpha.

RESULTS

- The P/P ratio was divided in 4 increments: <12, 12 to <14 (reference), 14 to <16 & ≥ 16 mg/g.
- MHD patients in the highest P/P group (>16 mg/g) exhibited almost 2-times increased death risk (see Figure):



CONCLUSIONS

- Hence, higher dietary P/P ratio is associated with increased death risk in MHD patients, even after adjustments for serum phosphorus, type of phosphorus-binder and dietary protein, energy and potassium intake.

KEY LEARNINGS

- ✓ In MHD patients, higher dietary phosphorus intakes and higher ratio of phosphorus to protein in the ingested food are associated with increased mortality even after adjustment for potential confounders including serum phosphorus.
- ✓ Our data have generated the hypothesis that ingestion of foods that have the lowest ratio of phosphorus to protein (such as egg whites) may contribute to improving outcomes.
- ✓ Randomized controlled trials need to examine these findings and hypotheses.

We thank the patients who participated in this study and DaVita Clinical Research® (DCR) for support in preparing this poster. DCR is committed to advancing the knowledge and practice of kidney care.

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