

Serum Phosphorus and 6-Year Mortality in Chronic Peritoneal Dialysis (CPD) Patients

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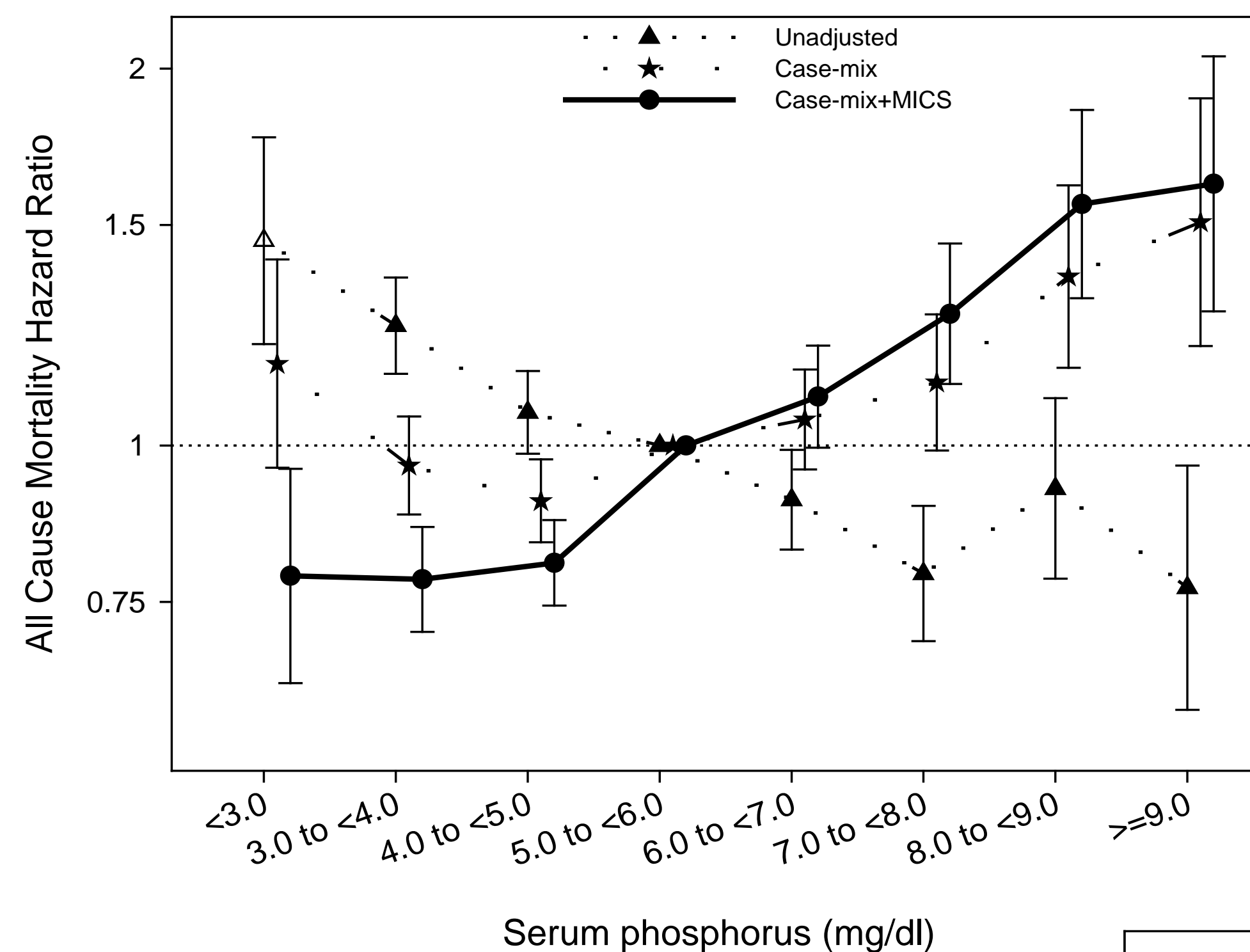
INTRODUCTION

- Both very low and high serum phosphorus (phos) levels are shown to be related to mortality in maintenance hemodialysis patients. However, the mortality predictability of phos in chronic peritoneal dialysis (CPD) patients may be different.
- We hypothesized that hyperphosphatemia is associated with higher mortality in CPD patients.

METHODS & RESULTS

- We examined a large contemporary cohort of over 12,000 CPD patients who underwent peritoneal dialysis treatment for at least 90 days in DaVita dialysis clinics from July 2001 through June 2006 and were followed up to June 2007.
- All laboratory values measured within a 3-month calendar quarters were averaged into one single value. Baseline and time-dependent Cox models were examined.
- We identified 12,170 CPD patients whose serum phos levels were measured; they were 54.4±16.4 year old and included 47% women, 23% African Americans and 13% Hispanics. Phos was categorized into 8 *a priori* selected groups of <3.0, ≥9.0 and 6 groups of 1 mg/dL increment in-between.

RESULTS



- Taking phos 5.0-6.0 mg/dl as reference, phos greater than 7.0 was associated with increased death risk after adjusting for case-mix & surrogates of malnutrition-inflammation complex syndrome (MICS).
- Death hazard ratios (and 95% CIs) in baseline model (Figure 1) for phos in 7.0-<8.0 mg/dl, 8.0-<9.0 mg/dl, ≥9.0 mg/dl were 1.3(1.1-1.5); 1.6(1.3-1.9) and 1.6(1.3-2.0), respectively, whereas lower baseline phos levels (<5.0mg/dl) appeared protective: 4.0-<5.0 mg/dl, 3.0-<4.0 mg/dl, <3.0 mg/dl were 0.79 (0.65-0.96); 0.78 (0.71-0.86); 0.81 (0.75-0.87), respectively. Time-dependent model (Figure 2) showed a U-shaped association.

Figure 1. All cause Mortality Hazard Ratio & Baseline Serum Phosphorus.

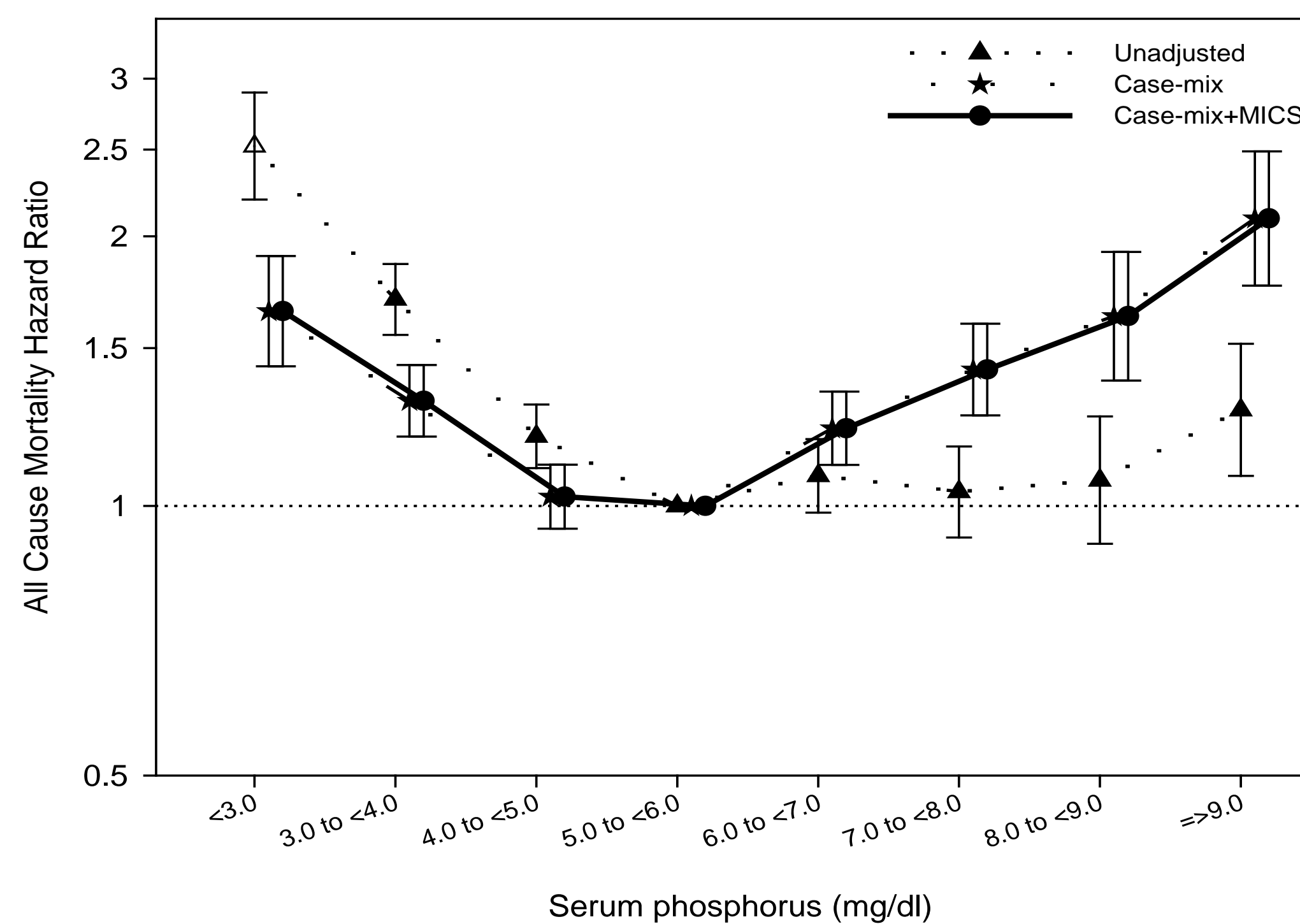


Figure 2. All cause Mortality Hazard Ratio & Time varying Serum Phosphorus.

CONCLUSIONS

- In this large and contemporary cohort of CPD patients, hyperphosphatemia (>7.0mg/dl) appeared as a potential incremental risk to mortality.

KEY LEARNINGS

- ✓ Results from our study suggests that high serum phosphorous levels may be associated with increased death risk.
- ✓ In particular, serum phosphorus should be kept under 7.0 mg/dl.

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