

Association of Serum Albumin and Survival in 10,229 Chronic Peritoneal Dialysis Patients

Uyen Duong, MD, MPH¹; Kamyar Kalantar-Zadeh, MD, MPH, PhD¹;
Csaba P Kovcsdy, MD²; Mahesh Krishnan, MD, MPH³; Allen Nissenson, MD³;
Joel D Kopple, MD¹; and Rajnish Mehrotra, MD¹;

¹Harold Simmons Center for Kidney Disease Research, & Division of Nephrology, LA BioMed at Harbor-UCLA, Torrance, CA; ²Salem VA, Salem, VA; and ³DaVita Inc., Denver, CO

INTRODUCTION

- In maintenance hemodialysis (MHD) patients, higher serum albumin is by far the strongest predictor of greater survival compared to virtually all other outcome predictors.
- Chronic peritoneal dialysis (CPD) patients lose albumin through the peritoneal fluid resulting in increased risk of low albumin levels.
- We hypothesized that serum albumin is a strong incremental correlate of greater survival in CPD patients.

METHODOLOGY

- We examined mortality-predictability of 3-month averaged serum albumin in a large and contemporary cohort of all CPD patients, who underwent dialysis treatment for at least 45 days in any legacy DaVita dialysis clinic from July 2001 through June 2006.
- We employed time-varying Cox regression based survival models to examine the association between 3-month averaged serum albumin concentration, in increments of 0.2 g/dL, and 5-year survival in the PD cohort, adjusted for case-mix and other pertinent variables.

RESULTS

- We identified in 10,229 CPD patients whose serum albumin was measured at least once during each of the 20 calendar quarters.
- CPD patients were 57.4±13.0 years old and comprises of 44% women, 20% African Americans and 16% Hispanics.
- Using the group 3.6 to <3.8 g/dL as the reference, patients with albumin >3.8 g/dL had better survival, whereas those with a serum albumin concentration <3.6 g/dL had increased death risk (Figure 1).

RESULTS

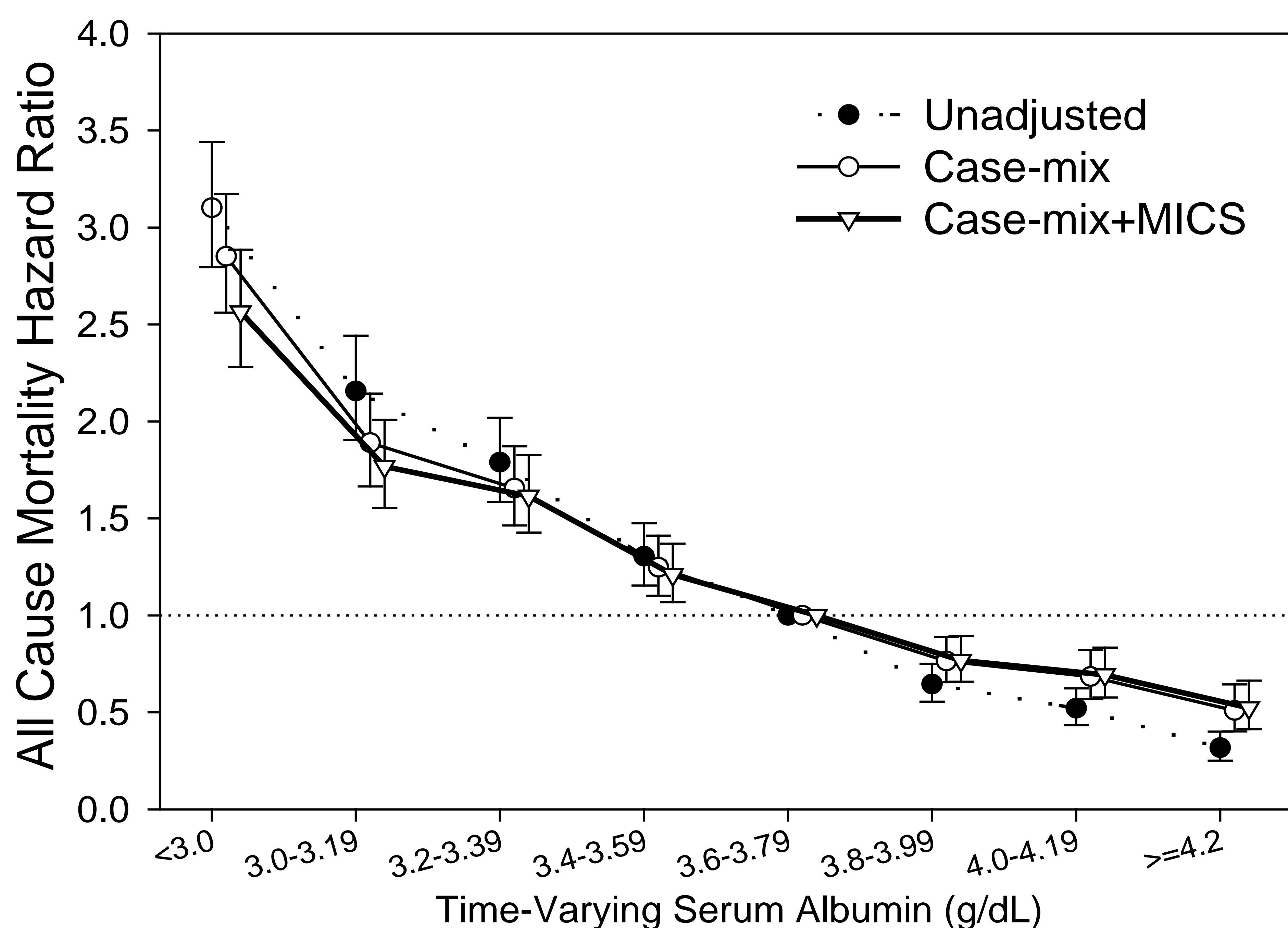


Figure 1. Association of Time-Varying Serum Albumin Concentration and Survival in 10,229 CPD patient (2001-2006)

CONCLUSIONS

- In this large national cohort of over 10,000 CPD patients, higher serum albumin with increments as small as 0.2 g/dL is associated with greater survival.
- Clinical trials to examine the benefit of nutritional and other interventions to improve hypoalbuminemia in CPD patients are indicated.

KEY LEARNINGS

- ✓ Similar to MHD patients, higher serum albumin is linearly associated with greater survival in CPD patients. Furthermore, survival increases with each incremental increase in serum albumin.
- ✓ If nutritional and other intervention can correct protein-energy wasting in CPD patients it should also increase serum albumin concentration. It is possible this may increase survival in CPD patients but this hypothesis need to be proven in randomized controlled trials.