

Association of pre-Transplant Serum Creatinine as a Potential Muscle Mass Surrogate and 5-Year Patient and Graft Survival in 10,090 Hemodialysis Patients

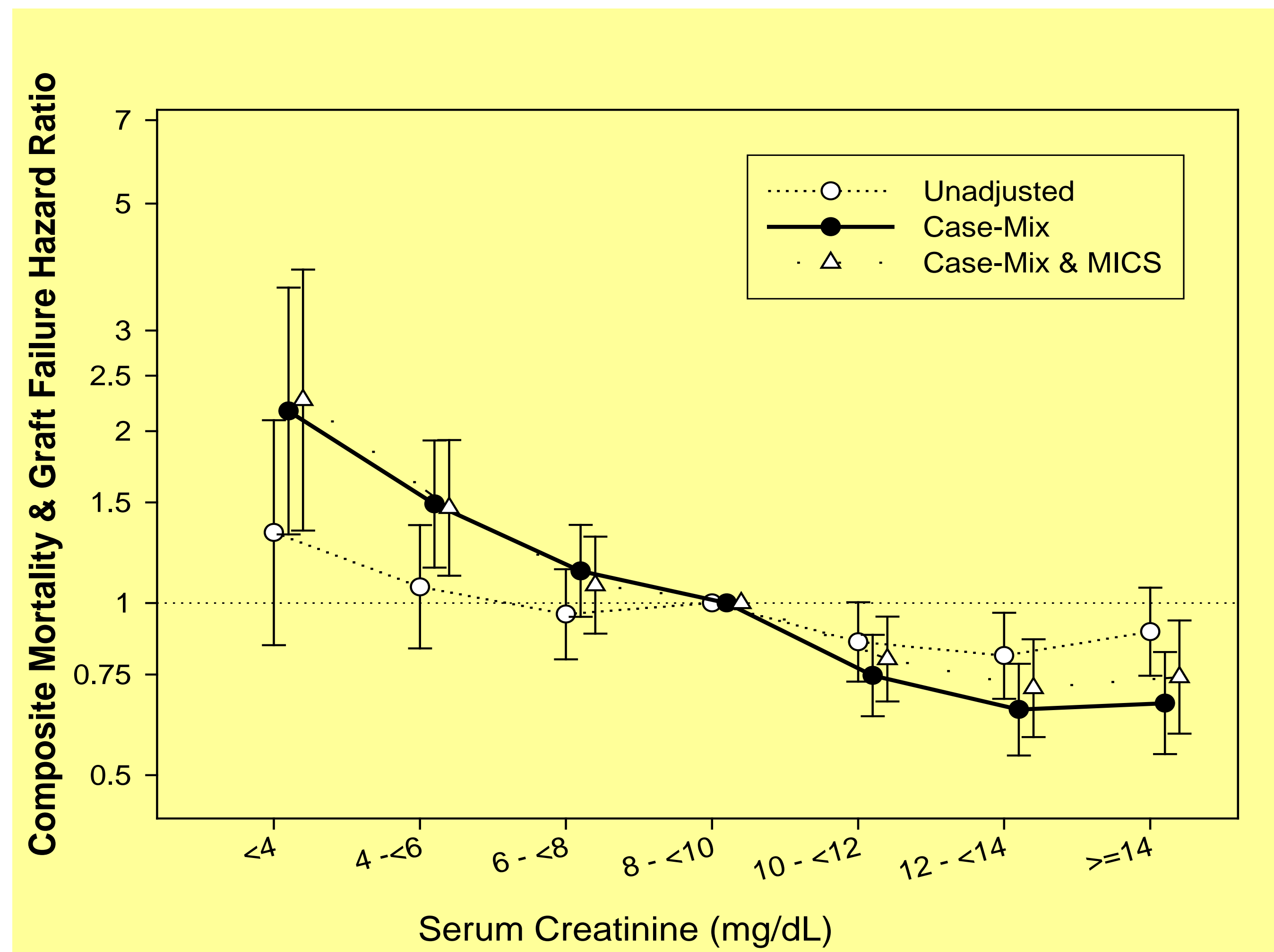
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INTRODUCTION

- Larger lean body and higher **muscle mass** appear to be associated with greater survival in long-term dialysis patients.
- However the association of pre-transplant muscle mass with **post-transplant outcomes** in dialysis patients who undergo renal transplantation is not known.
- The reduction in muscle mass (sarcopenia), is a predictor of mortality in CKD patients, and muscle wasting may lead to reduced skeletal, respiratory, and cardiac muscle function, compromising the vital functions of these organ systems, leading to poor outcomes.
- In maintenance hemodialysis (MHD) patients receiving any given hemodialysis regimen, **serum creatinine** measured prior to a HD treatment session is a measure of nutritional status including muscle mass and probably striated meat intake.
- We hypothesized that a higher pre-dialysis **serum creatinine**, a surrogate of **muscle mass**, in the months prior to transplant is associated with better post-transplant outcomes including greater graft survival and lower mortality.

METHODS & RESULTS

- After merging the "Scientific Registry of Transplant Recipients" (**SRTR**) database with DaVita national database of MHD patients over 5 years (7/2001-6/2006), we identified 10,090 renal transplant recipients (RTR), in whom time to **death** or **graft failure** was calculated.
- Pts were 49±13 yrs old and included 49% women, 45% diabetics & 27% Blacks. The 3-mo averaged creatinine prior to transplant was 10.6±3/2 mg/dL.
- Cox models adjusted for case-mix & MICS showed a linear and incremental association with the **composite of patient and graft survival** (see Figure 1).



- Demographics:
 - 49±13 yrs old
 - 49% female
 - 27% Black

Figure 1. Composite of RTR death and graft failure hazard ratios by serum creatinine increments

CONCLUSIONS

- Assuming that average pre-dialysis serum creatinine is a surrogate of muscle mass in long-term hemodialysis patients, larger muscle mass appears associated with better post-transplant outcomes.

KEY LEARNINGS

- ✓ Higher pre-transplant serum creatinine levels in MHD patients are incrementally and linearly associated with better post-transplant outcomes including lower mortality and lower graft failure.
- ✓ This linear benefit may indicate the role of nutritional status, including muscle mass and probably meat intake, on patient and grant longevity of renal transplant recipients.
- ✓ Trials to examine intervention to improve sarcopenia are indicated in transplant wait-listed pts.

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

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