

Gender Differences in the Survival-Predictability of Lean vs. Fat Mass in Maintenance Hemodialysis Patients

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INTRODUCTION

- In persons with chronic kidney disease (CKD), studies that have examined the association between adiposity and outcomes have mostly focused on body mass index (BMI), an imperfect measure of adiposity.
- Comparing mortality-predictability of different body composition compartments including lean body mass (LBM) vs. fat mass (FM) have not been well studied in CKD patients, in whom high BMI has been consistently shown to correlate with greater survival.
- Also, it is not clear whether LBM or FM are equal predictors of survival in men and women.
- In the current study, we examined the association between LBM and FM, measured by near-infrared (NIR) interactance technology, with survival in a cohort of 742 MHD patients.
- We hypothesized that larger FM and larger LBM are each associated with greater survival in MHD patients irrespective of gender.

METHODS & RESULTS

- In 732 MHD patients we categorized men (n=391) and women (n=341) separately into four quartiles of NIR measured LBM and FM. Cox proportional models were used to estimate death hazard ratios (HR) [and 95% confidence intervals (95%CI)] after adjustment for case-mix over 5 years (2001-06).
- In women the highest quartiles of FM, FM%, and LBM were all associated with greater survival: HR=0.38 (0.20-0.71), 0.57 (0.32-1.03) and 0.34 (0.17-0.67), respectively. In men the highest quartiles of FM and FM%, but not LBM, were associated with lower mortality: HR=0.56 (0.27-0.96), 0.45 (0.23-0.88) and 1.17 (0.60-2.27), respectively. Figure 1 compares cubic spline survival models in men and women.

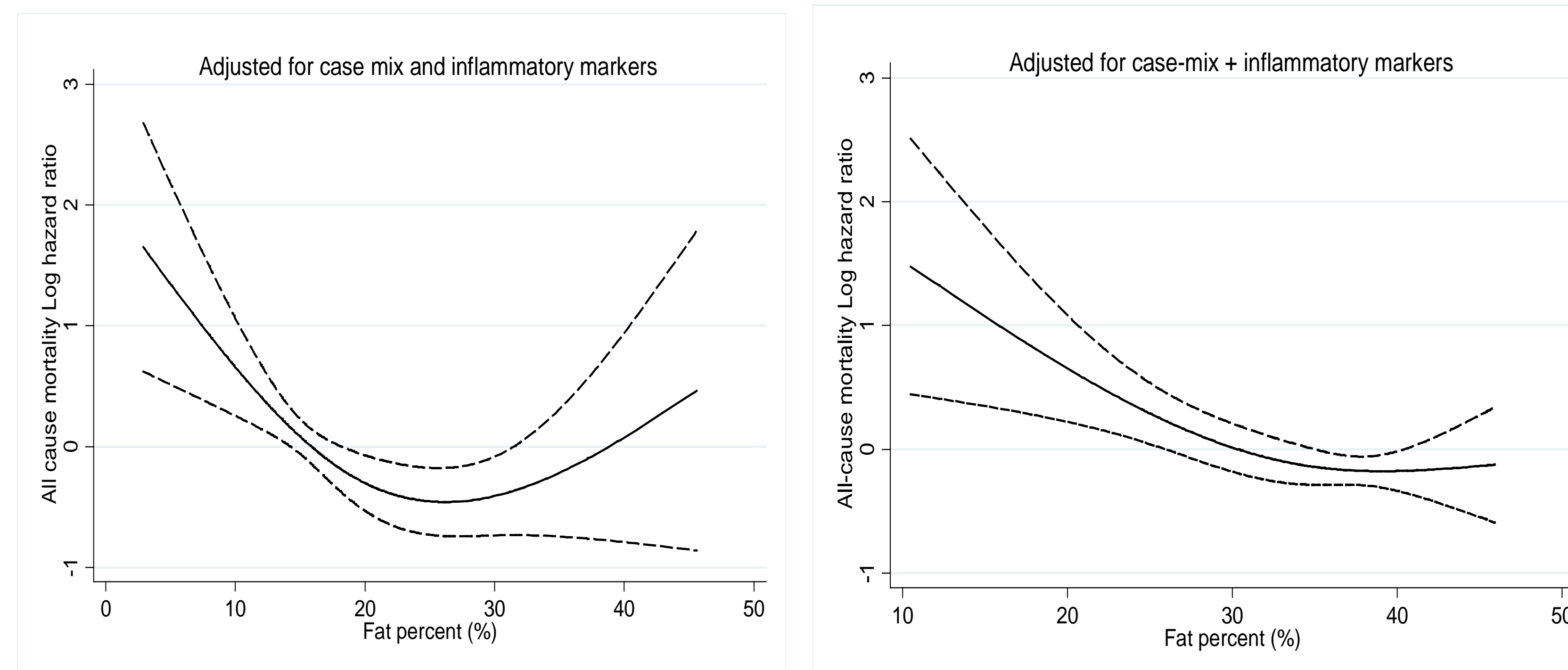


Figure 1. Mortality of FM in men (left panel) and women (right panel)

CONCLUSIONS

- In MHD patients, higher fat mass in both genders and higher lean mass in women appear protective.
- The gender differences of body composition and their impact on survival warrant additional studies.

KEY LEARNINGS

- ✓ Maintenance hemodialysis patients with higher excess fat relative to lean mass have lower death risk.
- ✓ In MHD patients higher fat mass in both genders and higher lean mass in women appear protective.
- ✓ Clinical trials to examine interventions that may increase fat mass and lean body mass in high risk dialysis patients are indicated.

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