

Survival Advantage of Excess Fat Relative to Lean Body Mass in Long-Term Hemodialysis Patients

Nazanin Noori, MD, PhD¹; Csaba P Kovcsy, MD²; Ramanath Dukkipati, MD⁴; Yongmee Kim, RN, PhD¹; Uyen Duong, MD¹; Rachelle Bross, RD, PhD¹; Antigone Oreopoulos, PhD¹; Debbie Benner, MA, RD, CSR³; Joel D Kopple, MD¹; and Kamyar Kalantar-Zadeh, MD, MPH, PhD*¹

¹Harold Simmons Center, Harbor-UCLA Medical Center, Torrance, CA; ²Salem Veterans Affairs Medical Center, Salem, VA; ³DaVita, Denver, CO; and ⁴University of Alberta, Edmonton, Canada

INTRODUCTION

- Several studies have suggested that maintenance hemodialysis patients (MHD) with higher body mass index (BMI) enjoy a survival advantage. It is not clear whether lean body mass (LBM) or fat mass (FM) confers this survival benefit
- To our knowledge there are only a limited number of studies that have examined the relative contributions of LBM and FM to clinical outcomes in CKD patients who undergo MHD. Current practice of medicine, however, advise obese persons to lose weight
- 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.
- Using NIR technology, we measured body compositions in 732 MHD patients and ranked them twice, once according to their absolute FM or then LBM (in kg) and assigned a percentile score to each patient within each gender group, i.e., a number between 0 (lowest) and 100 (highest FM or LBM).

METHODS & RESULTS

- The difference between the two percentile scores (FM percentile minus LBM percentile) in each patient yielded a number between -100 (indicating a patient with lowest FM but highest LBM) and + 100 (indicating a patient with highest FM and lowest LBM).
- The Cox survival regression was modeled using cubic spline for the "FM minus LBM percentiles" after adjustment for case-mix and inflammatory markers.

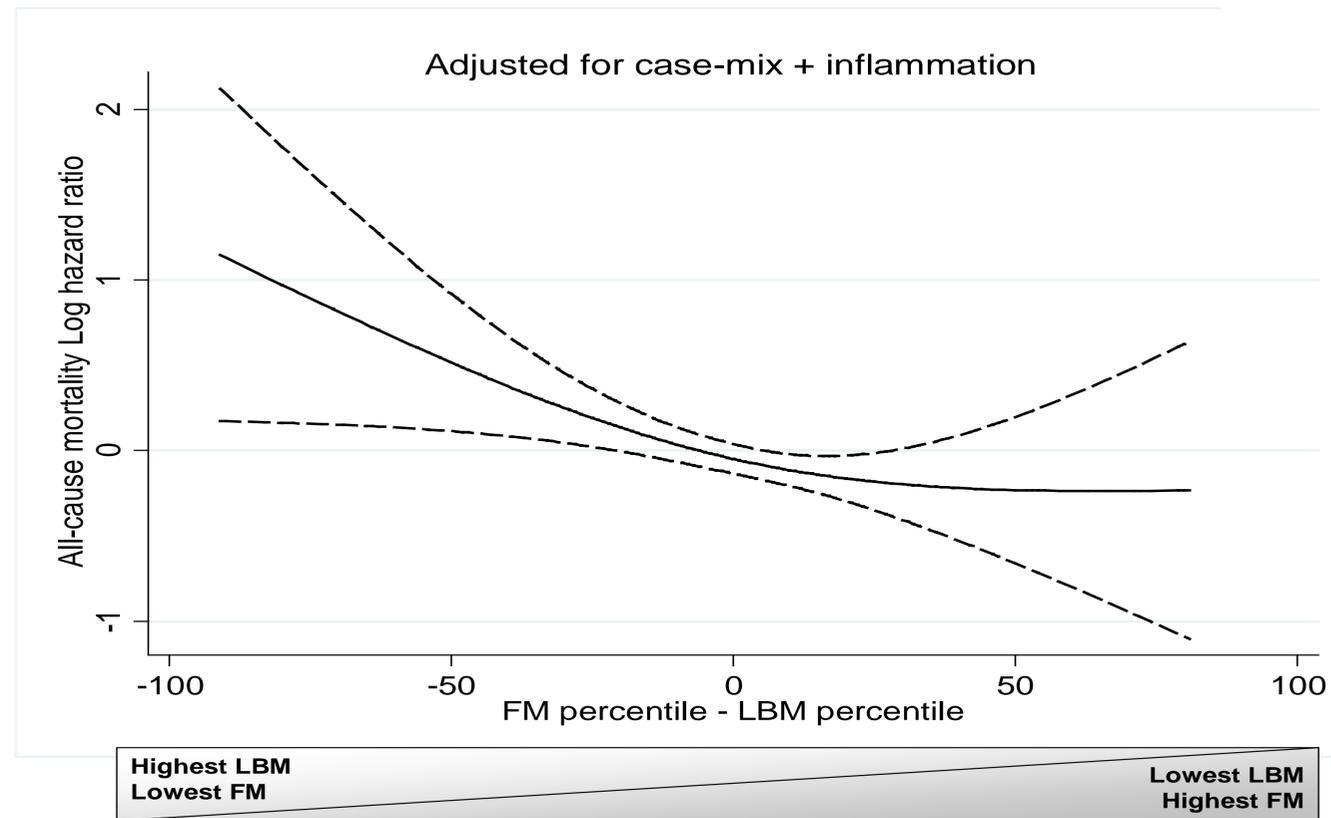


Figure . Cubic spline models of the Cox proportional regression analyses reflecting mortality-predictability (with 95% CI) according to the difference between the gender-specific ranked percentiles of FM and LBM over 5 years

CONCLUSIONS

- A relatively linear and downward trend towards greater survival was observed with higher excess fat relative to LBM (see Figure).
- In MHD patients, the excess fat relative to LBM appeared associated with greater survival.

KEY LEARNINGS

- ✓ These findings may have important clinical and public health implications, especially since the current practice of medicine has a heavy bias on the undifferentiated advice for obese persons to lose weight, whereas in maintenance dialysis patients and other populations with chronic disease states an obesity paradox prevails.
- ✓ Clinical trials to examine interventions that may increase FM and LBM in high risk dialysis patients are indicated.

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.

*Correspondence: Kamyar Kalantar-Zadeh, MD, PhD
 Email: kamkal@ucla.edu