

Survival of High Body Mass Index Based on the 5-Year Average of All Thrice-Weekly Measured Post-Dialysis Dry Weight in over 120,000 Hemodialysis Patients

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INTRODUCTION

The "obesity paradox" or "reverse epidemiology" has consistently been observed in maintenance hemodialysis (HD) patients in that higher body mass index (BMI) at any point in time is associated with greater survival.

It is not clear whether the time-averaged (cumulative) BMI shows similar associations.

We examine the association of time-averaged BMI and mortality in a large cohort of HD patients.

METHODOLOGY

- Calculated 5-year time-averaged BMI based on the averages of thrice weekly measured post-HD dry weight in 121,762 HD patients in all DaVita clinics
 - Used up to 156 thrice-weekly post-HD dry weight values per year
- Study period: 7/2001 to 6.2006
- Patients were observed for up to 5 years or up to death or censorship.
- Cox model were examined for 11 a priori selected BMI categories, as well as for continuous BMI values using cubic spline models, after adjustment for case-mix and measure of malnutrition-inflammation complex syndrome (MICS).

RESULTS

Figure 1. Cox proportional hazard regression for increments of BMI

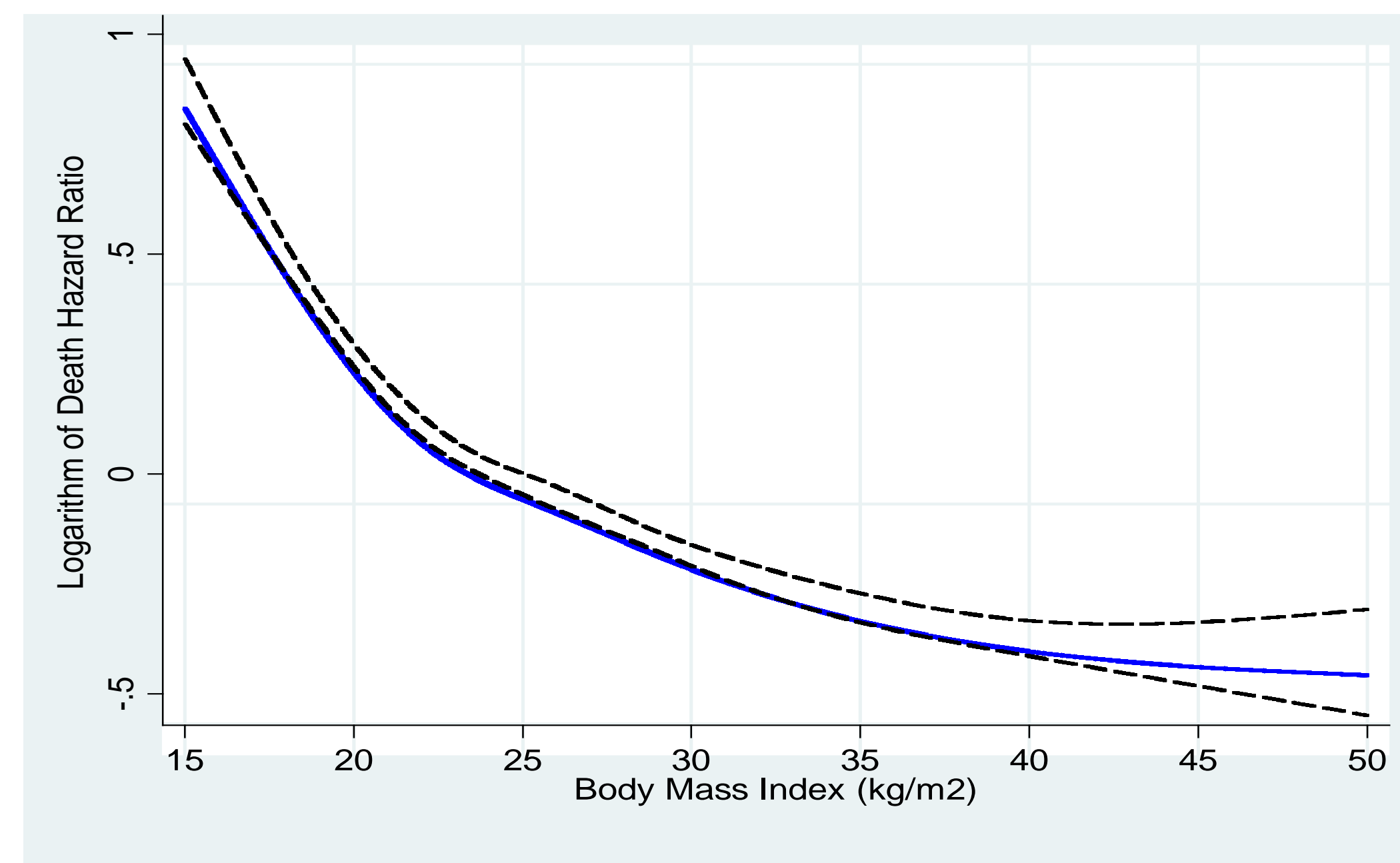
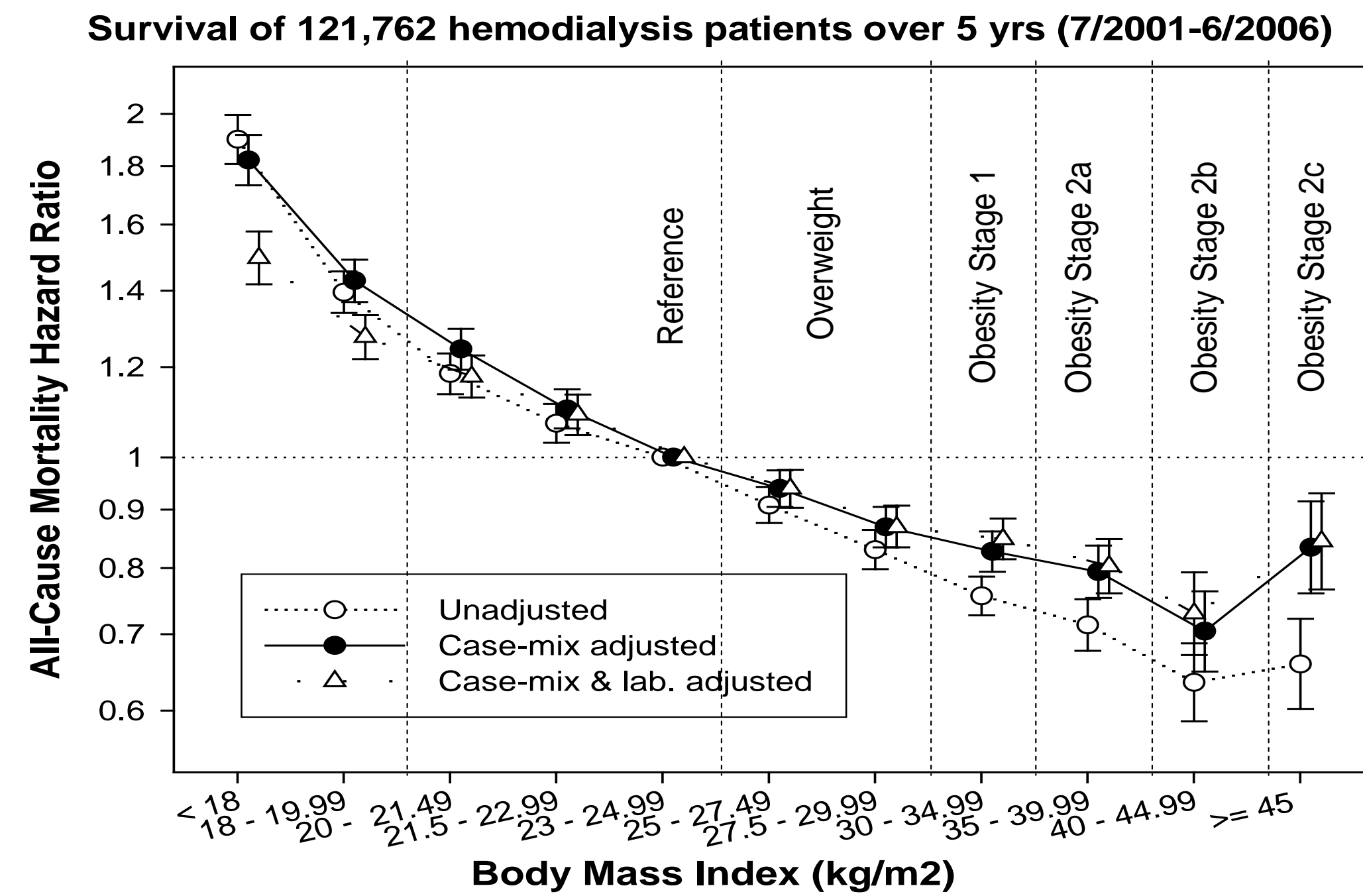


Figure 2. Cubic spline modeling of the proportional hazard regression for the continuous BMI range

CONCLUSIONS

- Patients were 61.1±5.6 years old and included 45% women, 32% African Americans, 14% Hispanics and 43% diabetics.
- Higher BMI values between 25 and 45 kg/m² were incrementally and linearly associated with greater survival, whereas low normal to low BMI values were linearly linked to increased death risk (Figures 1).
- These associations remained virtually identical using cubic spline modeling of the survival analyses (Figure 2).

KEY LEARNINGS

- ✓ Survival advantages of higher time-averaged BMI values up to 45 kg/m² are observed in a large and contemporary national cohort of HD outpatients.

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