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EXAMINING THE ROBUSTNESS OF CARDIOVASCULAR MORTALITY IN THE OBESITY PARADOX: A MARGINAL STRUCTURAL MODEL ANALYSIS: Megha Doshi¹; Elani Streja¹; Connie M. Rhee¹; Wei-Ling Lau¹; Csaba P. Kovcsdy²; Steven Brunelli,³ Kamyar Kalantar-Zadeh¹ ¹Harold Simmons Center, UC Irvine, Orange, CA; ²Nephrology, Univ. of Tennessee, Memphis, TN; ³DaVita Clinical Research, Denver, CO

Previous studies have found an inverse association between body mass index (BMI) and cardiovascular (CV) death in chronic hemodialysis (HD) patients, also known as the “reverse epidemiology”. It is not clear whether these observations result from residual confounding. We investigated this association accounting for time-dependent confounders using marginal structural modeling (MSM) and hypothesized that even after applying MSM, the inverse association of BMI with CV death in HD patients remains robust.

We examined the associations of BMI with CV mortality among 127,324 adult HD patients during 2001-2006 period using 11 BMI categories using baseline, time-averaged, and time-varying BMI via adjusted Cox models, and an MSM to adjust for time-dependent confounders.

Patients were 62 ± 15 years old and included 45% women, 32% blacks, and 57% diabetics. In all four models, BMI showed a linear incremental and inverse association with CV death. In MSM analyses, compared to a BMI of 25-27.5, BMI of <18 was associated with a 64% higher death risk (HR 1.64, 95% CI 1.46-1.85), whereas the CV mortality risks were significantly lower with higher BMI with the greatest survival advantage for BMI 40- <45 (HR: 0.79, 95% CI 0.68-0.92).

Hence, the CV survival advantages of high BMI is robust across all models including MSM analyses.

