

# UC Irvine

## UC Irvine Previously Published Works

### Title

Greater Fluid Retention Is Associated with Increased Cardiovascular Mortality In Different Groups of CKD Patients on Hemodialysis

### Permalink

<https://escholarship.org/uc/item/1256b57n>

### Journal

CIRCULATION, 118(18)

### ISSN

0009-7322

### Authors

Kalantar-Zadeh, Kamyar  
Regidor, Deborah L  
Kovesdy, Csaba P  
[et al.](#)

### Publication Date

2008

### Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

Circulation Vol. 118, No. suppl\_18

## Abstract 809: Greater Fluid Retention is Associated with Increased Cardiovascular Mortality in Different Groups of CKD Patients on Hemodialysis

Kamyar Kalantar-Zadeh, Deborah L Regidor, Csaba P Kovesdy, Suphamai Bunnapradist, David Van Wyck, Tamara B Horwich and Gregg C Fonarow

Originally published 28 Oct 2008

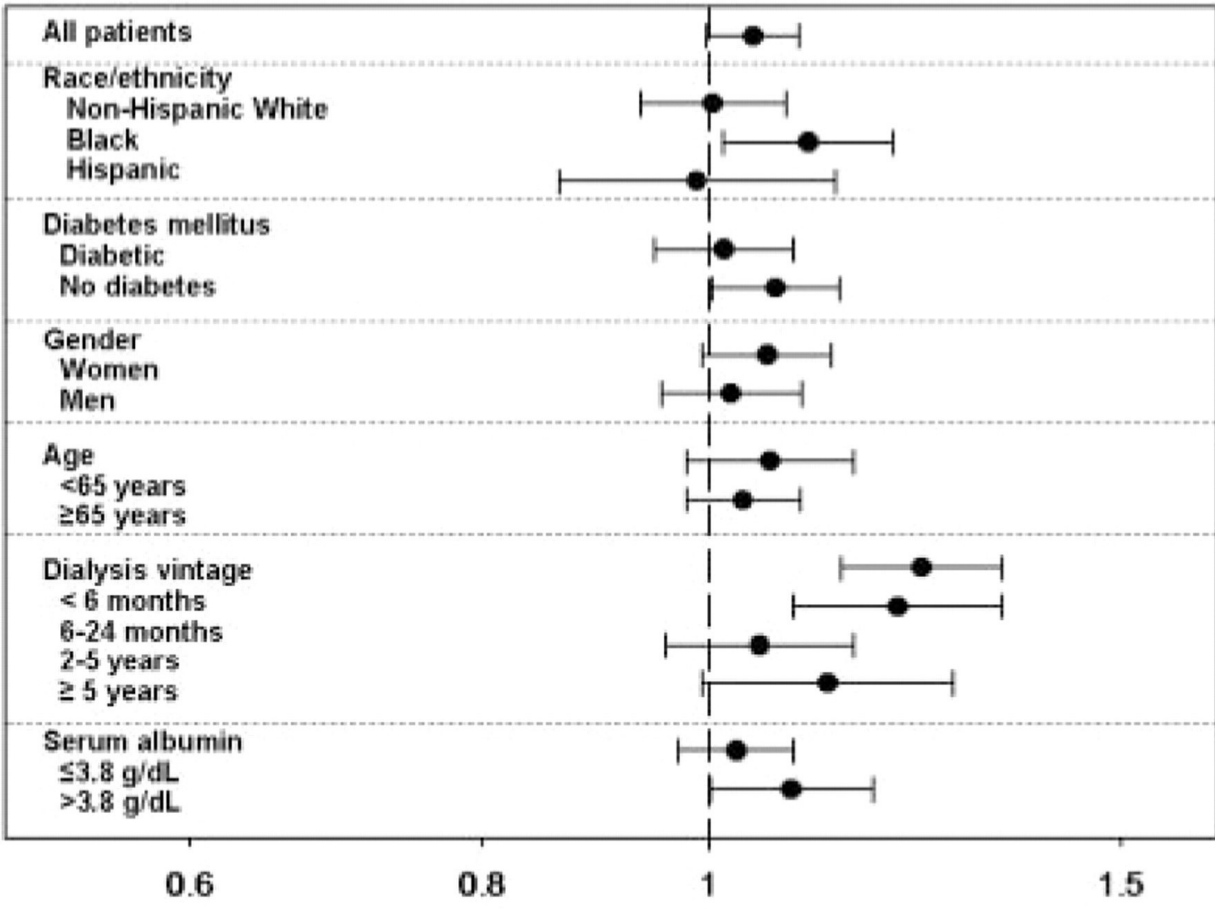
[https://doi.org/10.1161/circ.118.suppl\\_18.S\\_615](https://doi.org/10.1161/circ.118.suppl_18.S_615)

Circulation. 2008;118:S\_615

### Abstract

Patients with chronic kidney disease (CKD) who undergo hemodialysis (HD) treatment have striking similarities to heart failure (HF) patients, in that both populations retain fluid frequently, have excessively high mortality, and exhibit an obesity paradox. We hypothesized that in HD patients greater interdialytic fluid retention is associated with poor cardiovascular (CV) survival. We examined the 2-year (7/01–6/03) mortality in 34,003 MHD patients across the United States, who had an average weight gain of at least 0.5 kg above their end-dialysis dry weight by the time the subsequent HD treatment started. The 3-month average interdialytic weight gain was dichotomized into two categories of 0.5 to 2.0 kg (reference) and  $\geq 2.0$  kg. After multivariate adjustment for demographics (case-mix) and laboratory surrogates of malnutrition and inflammation, higher weight gain  $\geq 2.0$  kg was significantly associated with increased death risk in most subgroups of patients particularly among Blacks (death hazard ratio [HD] and 95% confidence interval [CI]: 1.10 [1.01–1.20]), non-diabetics (1.07 [1.01–1.14]), those with 3 to 6 months on dialysis (1.23 [1.14–1.33]) and between 6 months and 2 years on dialysis (1.20 [1.09–1.33]), and those with albumin  $>3.8$  g/dL (1.08 [1.01–1.18]) (see Figure): In MHD patients greater fluid retention of 2 kg or higher between two consecutive HD treatment sessions appears associated with higher death risk particularly among Blacks, non-diabetics, those with less than 2 years of HD treatment, and those with better nutritional status. The mechanisms by which fluid retention influences survival in HD may be similar to HF patients and warrants further research.

This research has received full or partial funding support from the American Heart Association, AHA Western States Affiliate (California, Nevada & Utah).



All-cause Death Hazard Ratio