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**Title**

Reply from the Authors

**Permalink**

<https://escholarship.org/uc/item/47g7k95w>

**Journal**

Kidney International, 64(3)

**ISSN**

0085-2538

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**Publication Date**

2003-09-01

**DOI**

10.1046/j.1523-1755.2003.t01-1-00166.x

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Peer reviewed

## Reverse epidemiology and obesity in maintenance dialysis patients

**To the Editor:** I was quite interested to read the recent article by Kalantar-Zadeh et al [1]. The authors cite several studies [2] to support a uniform effect of obesity on survival. However, there have been some American studies that show the effect of obesity on survival in chronic dialysis patients is far from uniform. First, Kutner and Zhang [3] showed in a statewide cohort that the apparent benefit of obesity in chronic hemodialysis patients did not apply to white females. This finding was confirmed by our institution in a report by Glanton et al [4], which looked at over 151,027 chronic dialysis patients from 1995 to 1997. Even more intriguing, we found that the only specific cause of death that was significantly more common among obese women was death due to infection, predominantly vascular access infection and extremity gangrene. Therefore, “reverse epidemiology” notwithstanding, we believe this represents an opportunity to improve the health of patients on chronic dialysis. Perhaps most intriguing of all, however, is Glanton et al’s [5] most recent paper, which showed that obese patients on the renal transplant waiting list still had a survival benefit after renal transplantation compared to remaining on dialysis. We believe similar approaches may successfully lead to “a reversal of the reverse epidemiology and a return to traditional epidemiology,” as the authors stated.

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### Reply from the Authors

We appreciate the important points made by Dr. Abbott in his Letter to the Editor. We, indeed, reiterated that the relationship between an increased weight and a better clinical outcome in dialysis patients is not completely uniform [1]. For example, as we mentioned in our review [1], in Asian American hemodialysis patients, a conventional (and not a reverse epidemiology) pattern has been shown (i.e., obese Asian American dialysis patients have a worse clinical outcome) [2]. However, the general trend in almost all epidemiological studies of maintenance hemodialysis patients has been consistent with the reverse epidemiology, even though exceptional subpopulations are occasionally described. Glanton et al [3] indicated that obesity was associated with increased risk of infectious death in female dialysis patients; however, the same study found that in all other dialysis patients, and especially among African Americans, obesity was indeed associated independently with reduced all-cause mortality. In the study by Kutner and Zhang [4], only white females did not show the reverse epidemiology pattern, whereas black female, black male, and white male hemodialysis patients with higher body mass index had a reduced risk of mortality. The reverse epidemiology is a new concept that should be further examined and modified, as necessary, to accommodate such exceptional subpopulations. Identifying non-end-stage renal disease groups with a reverse epidemiology, such as individuals with heart failure, metastatic cancer, acquired immunodeficiency syndrome, or advanced age may promote better understanding of the mechanisms involved in the reversal of the effect of conventional risk factors in such populations, as well as among end-stage renal disease patients [abstract; Kalantar-Zadeh K et al, *Am J Kidney Dis*, 2003].

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