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Title

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Permalink

<https://escholarship.org/uc/item/3dx5b2mj>

Journal

HYPERTENSION, 44(4)

ISSN

0194-911X

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Publication Date

2004

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Peer reviewed

Reverse Epidemiology of Hypertension in Dialysis Patients: Bad Gone Good?

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Maintenance hemodialysis (MHD) patients (pts) in the USA have a high prevalence (~70%) of untreated sHTN & a high mortality (~20%/year). Some reports, however, indicate a paradoxical effect of sHTN on dialysis mortality, i.e., a normal to low blood pressure (BP) is associated with poor outcome, a phenomenon known as “reverse epidemiology”. We studied a 2-year (10/2001–9/2003) nonconcurrent cohort of 10,570 MHD pts from 524 DaVita dialysis facilities in the USA, whose baseline BP were available. They were 61.8±15.7 years old (mean±SD) & included 45.4% women & 40.9% diabetics. Cox proportional hazard models were conducted for predialysis systolic BP categories of <110, >180 & increments of 10 mmHg in-between (see Figure). Unadjusted, case-mix adjusted* (controlled for age, gender, race, diabetes) & more comprehensive adjusted** (controlled for case-mix & serum albumin, protein intake, dialysis dose & body mass index) hazard ratios of death showed progressively increasing death risk for decreasing BP values. The lowest mortality was associated with sHTN (sBP≥140), whereas normal to low BP (<140) were associated with significantly increased mortality. Considering the sBP range of 160–170 as baseline (lowest death rate), mortality was 2 to 3 times higher with sBP ranging 110–130 & at least 4 times higher with sBP<110 mmHg. Hence, our data are consistent with the existence of the reverse epidemiology phenomenon for BP in MHD pts even after rigorous adjustment for other risk factors & pertinent variables. These findings raise the question as to whether evidence-based treatment goals for the general population can be applied to dialysis pts or other similar populations.

