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Permalink

<https://escholarship.org/uc/item/6hz9f9fw>

Journal

AMERICAN JOURNAL OF KIDNEY DISEASES, 63(5)

ISSN

0272-6386

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Publication Date

2014

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Peer reviewed

A94

Am J Kidney Dis. 2014;63(5):A1-A121

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ROLE OF DIETARY PROTEIN INTAKE IN ASSOCIATION OF SERUM PHOSPHORUS WITH MORTALITY IN

HEMODIALYSIS PATIENTS: Vanessa Ravel¹; Wei-Ling Lau¹; Connie M Rhee¹; Elani Streja¹; Jongha Park¹; Hsin-yi Wang¹; Csaba P Kovcsdy²; Steven Brunelli³; Kamyar Kalantar-Zadeh¹. ¹Harold Simmons Center, UC Irvine, Orange, CA; ²Nephrology, Univ. Tennessee, Memphis, TN; ³DaVita Clin Res., Denver, CO

Serum Phosphorous (P) level may be influenced by dietary protein intake (DPI) in hemodialysis (HD) patients. Both P and DPI are associated with mortality in HD patients, such that death-predictability of serum P level may be modified by DPI. We hypothesize that levels of serum P interacts with levels of DPI leading to modification of the death risk over time.

We examined the association of combined serum P and normalized protein catabolic rate (nPCR), a surrogate of DPI, with all-cause mortality in 108,635 HD patients followed for up to 5 years (2001-2006). We used 4x4=16 categories of combined groups (P: <3.5, 3.5-<5.5, 5.5-<7.0, ≥7.0 mg/dL, nPCR: <0.8, 0.8-<1.0, 1.0-<1.2, ≥1.2 g/kg/day) in time-varying Cox models with multivariable adjustment for case-mix and markers of the malnutrition and inflammation complex (MICS).

Patients were 64±15 years old and included 45% women, 33% blacks, and 59% diabetics. Compared to HD patients with P ≥7.0 mg/dl and nPCR <0.8 g/kg/day, the greatest survival was observed in patients with P 3.5-<5.5 mg/dl and nPCR 1-<1.2 g/kg/day (HR 0.49, 95%CI 0.46-0.53) in fully adjusted model. In each nPCR group, there was a J-shaped association between P and mortality. P for interaction between P and nPCR <0.001.

Hence, the combination of well-controlled P and higher DPI appears associated with the greatest survival benefit in HD patients.

