

# Relative Contributions of Inflammation and Dietary Protein Intake to Hypoalbuminemia in Maintenance Hemodialysis Patients

Tarang Patel, MD<sup>1</sup>; Mehdi Rambod, MD<sup>1</sup>; Debbie Benner, RD<sup>2</sup>; Allen R. Nissenson, MD<sup>2</sup>; Csaba P. Kovessy, MD<sup>3</sup>; and Kamyar Kalantar-Zadeh, MD, MPH, PhD<sup>1\*</sup>  
 (1) Harold Simmons Center for Kidney Disease Research & Epidemiology, LABioMed at Harbor-UCLA, Torrance, CA; (2) DaVita, Lakewood, CO; (3) SVAMC, Salem, VA

## INTRODUCTION

Serum albumin is the strongest mortality predictor in maintenance hemodialysis (HD) patients. Yet, it is not clear if serum albumin represents protein intake, inflammatory state or both.

We hypothesized that hypoalbuminemia is associated with the combination of inflammation and low protein intake in HD patients

## METHODOLOGY

- We examined correlates of a low serum albumin <3.8 g/dL in 813 HD patients, in whom interleukin-6 (IL-6) and normalized protein catabolic rate (nPCR) was also measured.
- Patients were 53.9±14.7 years old; 47% were women, 50% Hispanic, 32% African-American and 56% diabetic.
- The average baseline serum albumin was 3.88±0.38 g/dL. The correlation coefficient of IL-6 and nPCR with serum albumin were -0.36 and +0.20, respectively (p<0.001). The odds of a serum albumin <3.8 g/dL was calculated.

## RESULTS

Table 1. Odds ratio of albumin<3.8 g/dL

Variable	Unadjusted	Case-mix (CM)	MICS
Age (10 yrs)	1.42 (1.28 1.58)	1.36 (1.21 1.52)	1.34 (1.17 1.54)
African American	1.32 (0.98 1.79)	1.17 (0.84 1.63)	1.63 (1.08 2.45)
Creatinine (1 mg/dl)	0.84 (0.80 0.88)	0.89 (0.83 0.94)	0.89 (0.83 0.96)
TIBC (each 10 mg/dL)	0.91 (0.88 0.95)	0.89 (0.85 0.93)	0.90 (0.85 0.94)
Log CRP (each 1 unit)	1.49 (1.30 1.72)	1.43 (1.22 1.67)	1.26 (1.05 1.51)
Log IL-6 (each 1 unit)	1.79 (1.53 2.10)	1.73 (1.5 2.06)	1.50 (1.24 1.82)

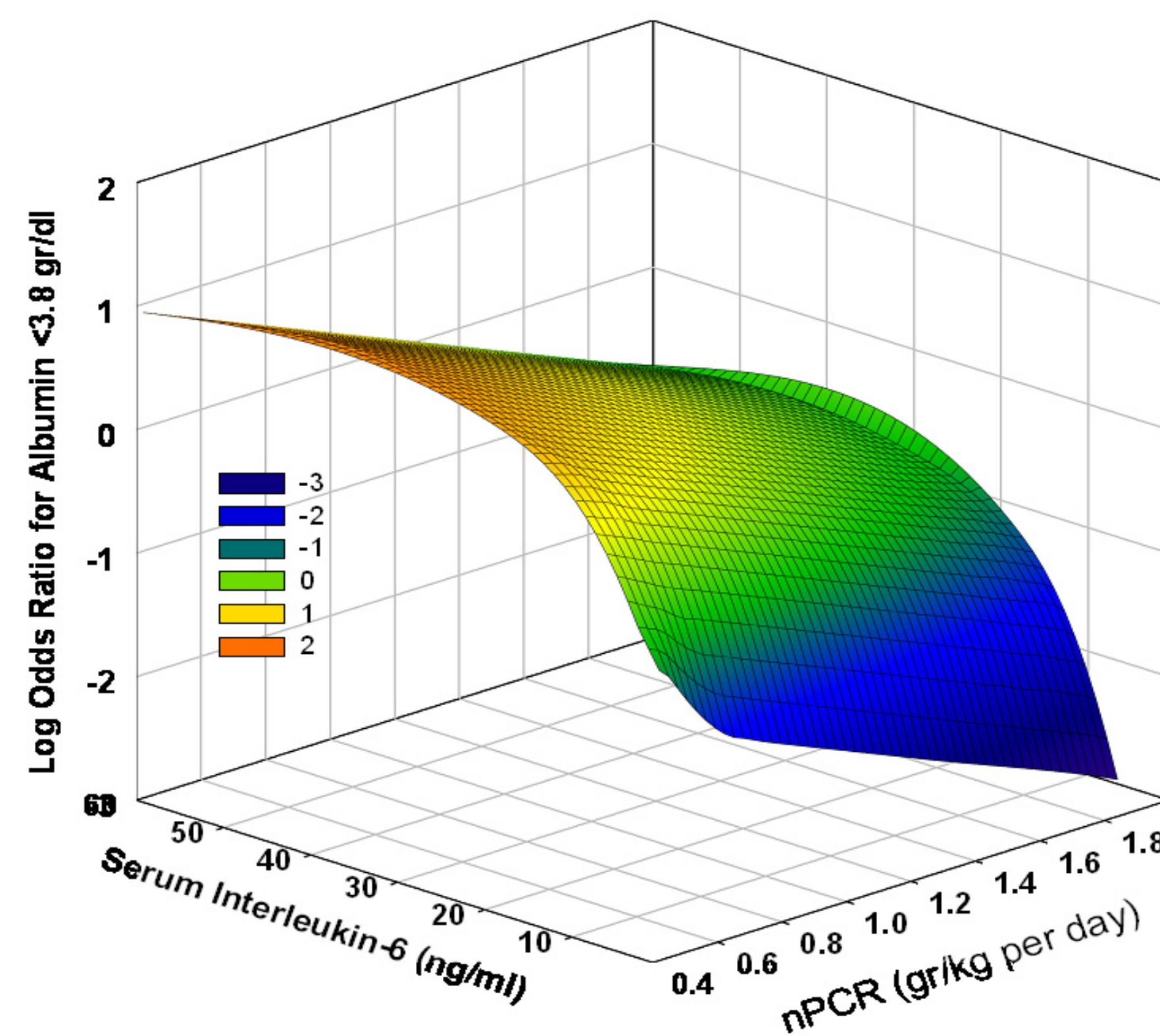


Figure 1. Relative contribution of high serum interleukin-6 and low nPCR (nPNA) in explaining the likelihood of serum albumin <3.8 g/dL

## CONCLUSIONS

- In combined logistic regression models, the odds ratio of serum albumin <3.8 increased linearly with decreasing nPCR (nPNA) (Table 1).
- There was an increasing trend toward hypoalbuminemia with increments of serum IL-6, which was more pronounced with increases in serum IL-6 up to 30 ng/ml (Figure 1).

## KEY LEARNINGS

- ✓ A serum albumin <3.8 g/dL is a combined function of low protein intake and a state of increased inflammation.

We thank the patients who participated in this study and DaVita Clinical Research® (DCR) for the research grant and support in preparing this poster. DCR is committed to advancing the knowledge and practice of kidney care.

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\*Correspondence: kamkal@ucla.edu