

VARIABILITY OR COMORBIDITY? EVIDENCE FOR A NULL EFFECT OF HEMOGLOBIN VARIABILITY ON MORTALITY IN HEMODIALYSIS (HD) PATIENTS

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Several studies have suggested that an increased level of hemoglobin (Hgb) variability may directly confer higher risk of mortality in HD patients. Of note, Wang et al (*JASN*, 18:3164-3170, 2007) reported that a 1 g/dL increment in Hgb variability over 6 months was associated with 33% (95% CI: 22%-45%) increased risk of death. However, this study was unable to adjust for the burden of comorbidity.

We conducted a retrospective cohort study of dialysis patients who survived during the first half of 2003, and received outpatient EPO during each month ($N = 151,144$). Follow-up included the second half of 2003, during which 11.4% of patients died. In a Cox model, we adjusted for age, gender, race, ESRD cause; Hgb level, Hgb trend, Hgb variability, number of months with Hgb < 10 g/dL; and ten comorbid conditions. We found that months with Hgb < 10, not variability, were associated with increased risk of death. This finding is largely consistent with a recent retrospective cohort study by Gilbertson et al (*CJASN*, *in press*).

<i>Relative Risk (p-value)</i>	Hgb Level (g/dL)	Hgb Trend (g/dL/mo)	Variability (g/dL)	Month w/ Hgb < 10
Wang et al	0.81 (<.01)	0.51 (<.01)	1.33 (<.01)	---
NOT Adj for comorbidity	0.79 (<.01)	0.46 (<.01)	1.29 (<.01)	---
	0.89 (<.01)	0.62 (<.01)	1.20 (<.01)	1.17 (<.01)
Adj for comorbidity	0.85 (<.01)	0.55 (<.01)	1.07 (<.01)	---
	0.91 (<.01)	0.65 (<.01)	1.02 (0.15)	1.08 (<.01)