

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

Eric Weinhandl<sup>1</sup>, David Gilbertson<sup>1</sup>, James Ebben<sup>1</sup>, Allan Collins<sup>1</sup>. Chronic Disease Research Group, Minneapolis Medical Research Foundation, Minneapolis, MN.

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>	<b>Hgb Level (g/dL)</b>	<b>Hgb Trend (g/dL/mo)</b>	<b>Variability (g/dL)</b>	<b>Month w/ Hgb &lt; 10</b>
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)