

# Is High Platelet Count Responsible for Increased Death Risk in Dialysis Patients with Hemoglobin >13 g/dL?

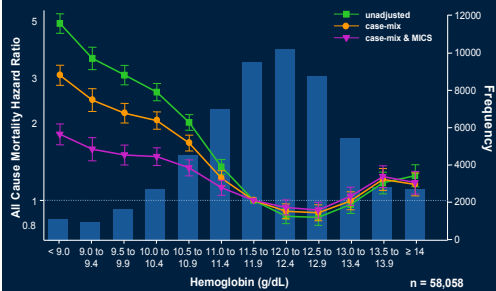
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## Background

- Recent studies have indicated a trend towards increased death risk with targeted hemoglobin (Hb) >13 g/dL in CKD patients (pts) receiving erythropoiesis stimulating agents (ESA) including maintenance hemodialysis (MHD) pts.
- The mechanism of this effect is unclear but appears to relate to an excess of cardiovascular deaths.

### Hemoglobin and Survival in 58,058 HD Patients (2001-2003)



Regidor et al. J Am Soc Nephrol. 17:1181-91; 2006

## Hypothesis

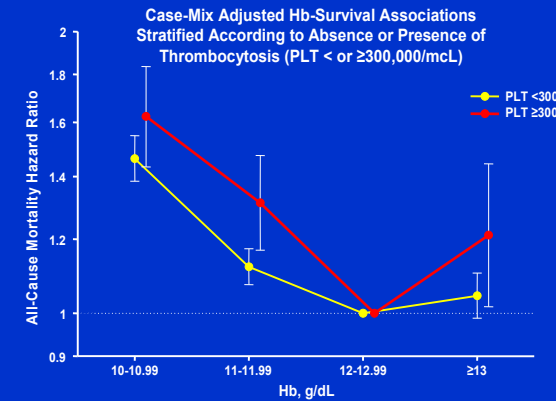
- We hypothesized that this adverse effect of higher hemoglobin may be related to an associated high platelet count

## Methods

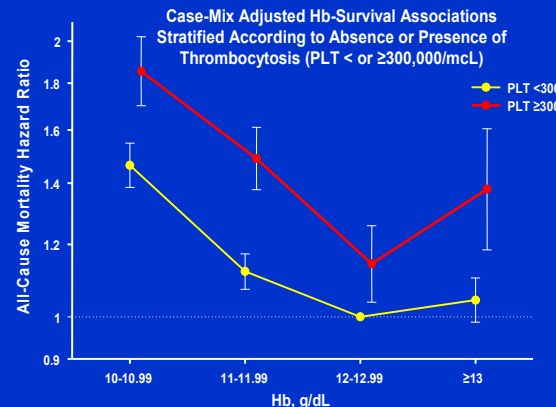
- We examined mortality predictability of the baseline Hb in different strata of platelet counts in a 3-yr (7/01-6/04) cohort of 34,228 DaVita MHD patients with Hb >10 g/dL.

## Results

### Risk of Death by Change in Hemoglobin



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- After dividing Hb range into 4 groups (10-11, 11-12, 12-13, and 13 g/dL), survival models were examined in two separate platelet count strata (<300k vs. 300k) adjusting for available potential confounders.

- Survival model adjustments were carried out at 3 levels:

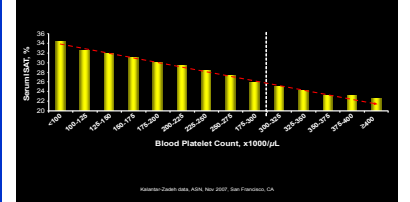
- Minimally adjusted (only adjusted for entry calendar quarter)
- case-mix (age, gender, race/ethnicity, diabetes, other comorbidities, vintage, insurance, marriage, SMR, Kt/V, dialysis catheter, ESA dose, and

- Malnutrition-inflammation complex syndrome (MICS) adjusted for laboratory surrogates of nutrition and inflammation (nPNA, serum albumin, creatinine, phosphorus, bicarbonate, TIBC, ferritin, and WBC).

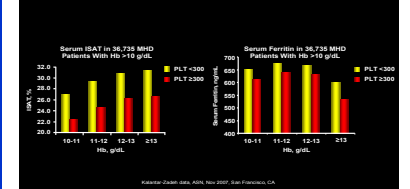
- Compared to Hb 12-13 (which showed the greatest survival), Hb13 was not associated with increased death risk in the low platelet category (hazard ratio [HR]: 1.03, 95%CI: 0.98-1.09, p=0.23),

- whereas in the high platelet category it was associated with 21% increased death risk (HR: 1.21, 95% CI: 1.02-1.43, p=0.026)

### Serum ISAT Across 25,000/mcL Increments of Blood Platelet Counts in 40,787 MHD Patients



### Association Between Serum ISAT and Hb Across the 2 Strata of Absence or Presence of Thrombocytosis (PLT < or ≥300,000/mcL)



## Conclusions

- Compared to Hb in 12-13 g/dL range, Hb13 g/dL is associated with 21% increased death risk only in the presence of high platelet count. Additional studies need to verify these findings.

## Acknowledgements

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Poster Session: Sunday, November 4, 2007, 10:00 AM, Halls A/B/C, SU-P0521