Variability in Hemoglobin Levels in Hemodialysis Patients in the Current Era

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Introduction

• Hemoglobin (Hb) variability in dialysis patients has been characterized by a number of methods.
• Most prior analyses were conducted before the 2011 change in CMS reimbursement (mean=58.2 g/dL) policy (Jan) and revised erythropoietin-stimulating agent (ESA) labels (July).
• Therefore, Hb variability (and patient demographics) from recent data were compared to results obtained before implementation of these policy changes.
• We also explored anemia management (including ESA, IV iron, and red blood cell transfusions) across the Hb variability groups.

Methods

• The study population consisted of maintenance HD patients as of October 1, 2012, with Medicare as primary payer (mean=58.2 g/dL), and had longer dialysis durations (mean=5.9 and 7.1). More LL patients were black (48.8%), and had the highest percentage of hospitalizations (62.2%).
• While Hb levels have decreased since the 2001 change in ESRD, a larger percentage was LH, whereas higher percentages were LL and HH (Figure 2).
• Compared with the overall 2012 cohort, II patients were older (mean=65.2 yr.), and LL and HI patients were younger (mean=58.2 and 57.8) and had longer dialysis durations (mean=5.9 and 7.1). More LL patients were black (48.8%), and had the highest percentage of hospitalizations (62.2%).
• Patients in the HH Hb category were less likely to receive iron, more than one-third of patients with consistently II or HI received lower ESA doses and fewer transfusions (Fig. 3 and 5).

Results

• Approximately 200X HD patients were included in this analysis.
• The 25th and 75th percentiles of Hb values in the 2012 data were 10.2 (rounded to 10) and 11.5 (Illustrated in Figure 1 by shading).
• Compared with the overall 2012 cohort, II patients were older (mean=65.2 yr.), and LL and HI patients were younger (mean=58.2 and 57.8) and had longer dialysis durations (mean=5.9 and 7.1). More LL patients were black (48.8%), and had the highest percentage of hospitalizations (62.2%).
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Conclusions

• While Hb levels have decreased since implementation of the 2011 policy changes, Hb variability remains.
• The lower percentage of patients in the HI Hb group is consistent with narrowing of the overall Hb distribution.
• Demographics, comorbidities and anemia management in Hb variability groups vary, especially in groups LL and HI.
• Further studies are needed to assess the association of Hb variability with outcomes in the current era.