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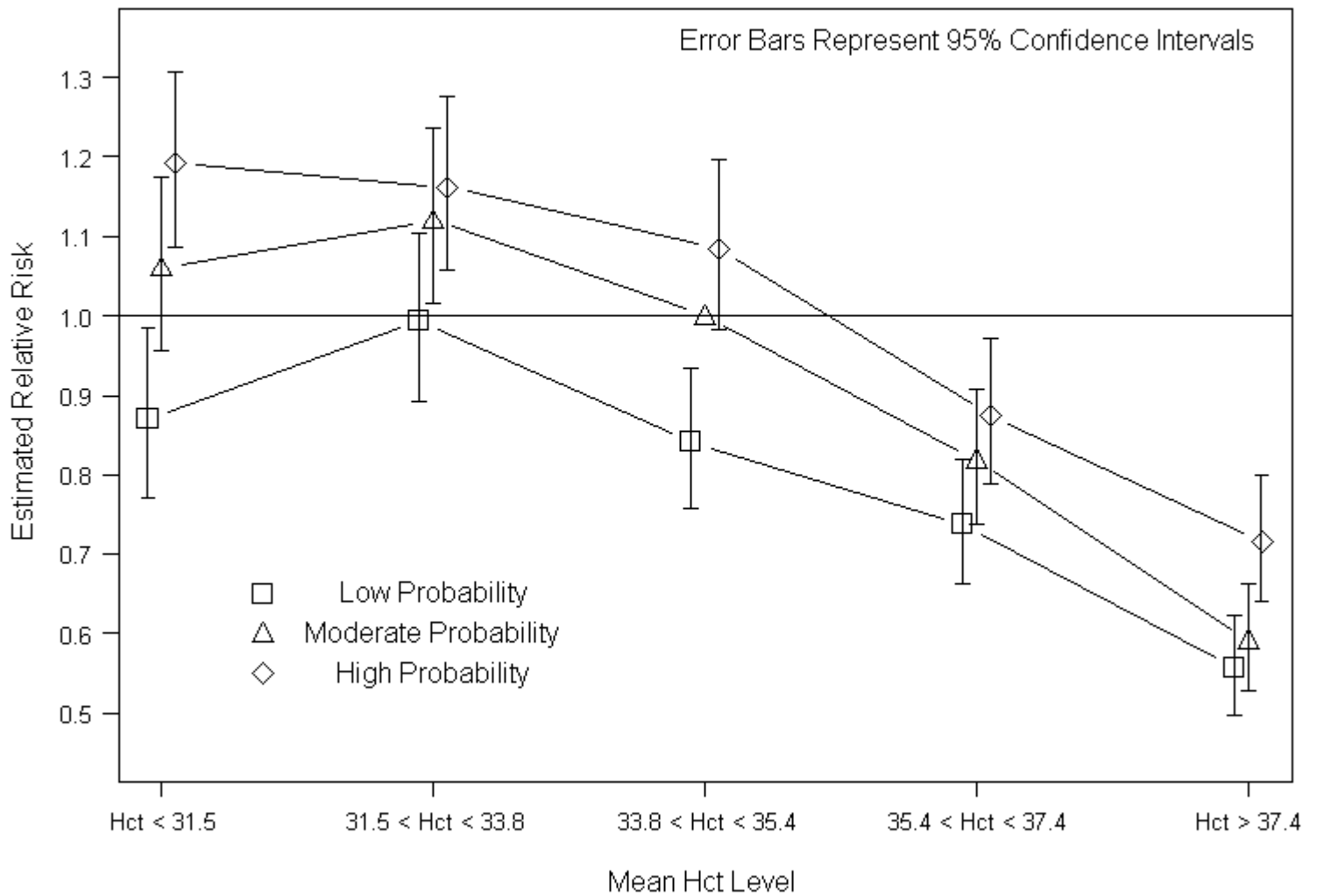
Anemia; Hematocrit; Mortality Risk

Title: Effect of Interaction of Actual and Predicted Anemia on Mortality

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Abstract:

Low hemoglobin (Hb) has been associated with poor outcomes. Also, sicker patients are more likely to be anemic. To address the relationship between Hb and severity of disease, we used a propensity score to assess the interaction of observed Hb and the probability of low Hb as a predictor of mortality. The cohort consisted of hemodialysis patients ($n = 38,804$) who became incident between 1997 and 2000, survived through a 9-month entry period following incidence, and possessed ≥ 1 EPO claim during the 4th through 9th month of the entry period. Mean Hb was calculated from Hb measurements within EPO claims. Probabilities of anemia (mean Hb < 11) were estimated via logistic regression, which adjusted for age, ethnicity, gender, race, and comorbidity measures, including inpatient days, catheter insertions, and 16 comorbidities. These comorbidity measures were assessed through Medicare claims during the 4th through 9th month of the entry period. Estimated probabilities were broken into tertiles, and mean Hb was broken into quintiles. Fifteen interaction groups were formed from these categories, and patients with a moderate probability of anemia and mean Hb within the third quintile served as the reference group. Patient mortality for the following 6 months was evaluated via Cox regression, which adjusted for the same covariates as in logistic regression. Patients were followed until the first instance of a change in modality, death, or completion of the 6 months.



Within each level of probability of anemia, increased mean Hb was associated with decreased risk of death. Among patients with a high probability of anemia, mean Hb >11.8 was associated with significantly ($p < 0.05$) lower risk of death, relative to the reference group. We conclude that Hb may be a stronger predictor of mortality than severity of disease.