To the editor:

Defining anemia by race using epidemiologic data

We laud Patel and colleagues’ thoughtful analysis and important contribution to the sparse literature on the racial variation in the relationship of anemia and outcome in older adults.1,2

The authors suggest that “alternative criteria are warranted” for defining anemia in blacks. They intimate that we should consider a threshold lower in blacks than the World Health Organization anemia criteria of hemoglobin (Hb) less than 130 g/L for men and less than 120 g/L for women based on their observation that anemia did not predict for increased mortality in blacks. However, we believe lowering the Hb threshold defining anemia based on this epidemiologic study is premature.

Because the data conflict with Denny and colleagues’ report showing increased mortality in older blacks having anemia, we must consider study limitations.2 In the manuscript by Dr Patel, the recruitment strategies for blacks and whites differed (whites were randomly selected whereas blacks were recruited) as did the number of patients lacking baseline Hb values (56% in blacks compared with 39% in whites). This may have introduced bias that abrogated the mortality impact of anemia. The authors also state that restricting the analysis to well-functioning individuals strengthens the study by negating confounding factors. However, to redefine population-based Hb thresholds in a nonpopulation-based analysis is problematic. Finally, it remains unknown whether anemia in older blacks increases the risk of other health-related outcomes such as hospitalization, quality of life, or institutionalization.

Even if anemia in older blacks is shown to have no impact on outcomes, defining anemia based solely on epidemiologic data may have unintended consequences. Anemia has long served as a clinically important sign of other conditions. Applying a lower Hb concentration to diagnose anemia would desensitize physicians and patients about when to evaluate anemia and/or may lead payors to refuse reimbursement for “mildly” low Hb values. As the authors point out, genetic traits, such as α-thalassemia,3 probably reduce the median Hb in blacks. Using a lower Hb threshold for all black older adults runs a serious risk of missing important causes such as nutrient deficiencies, iron deficiency (and underlying gastrointestinal pathology), or other serious conditions. Clarifying the Hb concentration below which an etiologic evaluation can be safely deferred requires a rigorous study analyzing anemia etiology by race and Hb concentration. Although approximately one-third of older anemic adults lack an obvious cause,4,5 prospective studies using careful clinical evaluation are lacking. Finally, we would also like to emphasize that observational data on Hb and mortality do not necessarily inform Hb criteria for corrective therapy using erythropoietin stimulating agents (ESA). Prospective trials in older anemic adults will be needed to discern the risks and benefits of anemia correction as well as the optimal Hb concentration for initiation and targeting with ESA.

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References

Response

Further epidemiologic research on anemia in older adults is needed

We appreciate Drs Artz and Dong’s interest in our work,1 and agree that research on the underlying causes of anemia in older adults is needed. A recent study by Semb and colleagues shows that older disabled women with anemia associated with renal disease or anemia of inflammation are significantly more likely to die compared with those who are nonanemic; however, no elevated risk of death was observed in those with anemia associated with nutrient deficiency or unexplained/idiopathic anemia.2 Although causes of anemia could not be determined directly in the Health, Aging, and Body Composition Study (Health ABC), World Health Organization (WHO)-defined anemia was associated with increased mortality risk in blacks who had renal disease and in blacks who had diabetes. These data suggest heterogeneity in risk for adverse outcomes in older adults with anemia and support the need for further investigation of the causes of anemia in larger, racially diverse cohorts of older adults.

Drs Artz and Dong also expressed concern about recruitment procedures and missing data in the Health ABC. All functionally able blacks within geographic target areas were sampled and recruited for the study, while a proportion of whites were randomly sampled. Oversampling of minority groups is a common practice used in many cohort studies because of the relatively smaller number and proportion of minorities in some regions. Regarding missing data, in response to this letter, we examined mortality in those who were excluded from our study because they did not participate in the year-3 clinic visit when...