Management of anemia in congestive heart failure (CHF)

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Authors' objectives
VHA’s Technology Assessment Advisory Group (TAAG) requested a review of transfusion in congestive heart failure. Exploratory searches for post-1990 research retrieved too few citations to support a focused review, encouraging expansion of our charge to a catalog of anemia-related systematic reviews for heart failure, which provides a comprehensive overview of the status of evidence.

Authors' conclusions
Beyond its role as a predictor of poor outcome, anemia in heart failure is incompletely understood and its value as a therapeutic target uncertain. The searches detailed above did not identify systematic reviews or analytic studies focused on transfusion as an intervention for congestive heart failure published within the last two decades. Recent publications detail the state of knowledge for anemia in heart failure:

“Chronic heart failure (CHF) is a leading cause of morbidity and mortality worldwide. Anemia is a common (12-55%) co-morbid condition and is associated with worsening symptoms and increased mortality. Anemia is treatable and can be targeted in the treatment of patients with CHF. Erythropoiesis-stimulating agents (ESA), supported by iron therapy, are used to treat anemia in chronic kidney disease and cancer, however safety concerns have been raised in these patients. The clinical benefit and safety of these agents in CHF remains unclear.” (Ngo, 2010).

“There are many questions about anemia in congestive heart failure (CHF)…Is anemia common? How common? Why is anemia increasing in prevalence in CHF? Is it an independent risk factor for mortality, morbidity, and hospitalization?…Does iron treatment improve the anemia and general condition of CHF patients? Is oral iron better than intravenous? Is it worthwhile treating iron deficiency even if anemia is not present? Does correction of anemia with ESAs improve CHF? What is the target hemoglobin (HB) in CHF? Are there dangers to the use of ESA and IV iron? What effect does iron deficiency have on platelet number and function? What effect does an increase in platelets have on inflammation, thrombosis, and atherosclerosis? What are the advantages of using ESA and IV iron alone or in combination in CHF, CKD, and the anemia of cancer chemotherapy? (Silverberg, 2009).

… “For much of the last century, RBC transfusion has been viewed as having obvious clinical benefit. However, over the last 20 years, RBC transfusion has come under increased scrutiny…it is now becoming clear that there are other important, less recognized (than infection) risks of RBC transfusion related to RBC storage effects and to immunomodulating effects of transfusion which occur in almost all recipients…may increase the risk of nosocomial infection, acute lung injury, and the possible development of autoimmune diseases later in life.” (Marik, 2008).

“Research into the anemia of heart failure is still in its infancy. We are unsure if it is generally related to a low red cell mass. We are unsure whether it responds to conventional hematinsics, the only robust test for hematinic deficiency. We do not know whether treating it will be beneficial or safe. We all hope it will be a new target for treatment that will transform the lives of patients. Imagination and innovation will make important contributions to the field, but they are not substitutes for randomized controlled trials demonstrating efficacy and safety.” (Clark, 2005).

Ongoing, adequately powered randomized controlled trials (RCTs) (Table 4) may resolve some of these uncertainties.

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