Anemia in the Elderly: Clinical Impact and Practical Diagnosis

Harvey J. Cohen, MD

INTRODUCTION

The symposium "Anemia in the Elderly: Clinical Impact and Practical Diagnosis" took place during the World Congress of Gerontology, held in Vancouver, Canada, on July 4, 2001. One of the predominant themes that emerged from this symposium was that the prevalence of anemia increases with age. Nevertheless, it is also evident that defining anemia is not as simple as has been thought in the past. Although achieving a hemoglobin level greater than 12 g/dL has often been used as a target of treatment, it has become clear that hemoglobin is actually a continuous variable. Many of the physiological changes characteristic of anemia occur along the hemoglobin continuum, and allocation of a single number, such as 12, may be inappropriate because many of the changes associated with anemia may take place before the hemoglobin reaches that level. It is also important to remember, especially in older individuals, that the physiological consequences of a reduction in hemoglobin are not determined by the hemoglobin level itself but by other comorbidities and syndromes to which older people are subject. The combination and complexity of these different variables are most remarkable. Often, the underlying etiology of anemia in individuals of advancing age can be determined and treated, but, if the cause of the anemia has not been identified, treating the chronic anemia itself is an option.

Studies have indicated that cytokine production is dysregulated with advancing age and that such dysregulation plays an important role in the pathogenesis of the frailty phenotype. Anemia is a significant characteristic of this phenotype and may cause physiological and functional problems, especially in those who are elderly and most vulnerable. Such problems, and the contribution of anemia to the complication of other conditions, are clearly costly. Therefore, it seems appropriate to seek new methods of combating the physiological effects of anemia, but it needs to be recognized that the treatment of anemia, and the amelioration of function and quality of life in older people, may be expensive and may not necessarily be cost affordable. Several suggestions for the treatment of chronic anemia in older people have been made. Erythropoietin is clearly an effective therapy for the anemias of cancer and renal disease and may be of potential use in anemias associated with aging, but the efficacy of this treatment approach remains to be demonstrated. In addition, concerns relating to the cost of anemia treatment and the investment that healthcare systems are willing to make in improving quality of life need to be resolved. These issues transcend the treatment of anemia with erythropoietin in a number of other disease areas. It has been estimated that many of the current advances in medical therapy will not be inexpensive, even when reductions in the cost of disease are considered. Nevertheless, they may improve quality of life, and the price that healthcare systems are willing to pay for this needs to be established.

When cytokines and the related mechanisms for anemia and frailty are considered, several novel approaches for therapeutic intervention can be identified, but such intervention approaches need to be considered carefully. It is dangerous to view the various regulatory networks in the body as simple systems, because there is much that is not yet known about the downstream effects of various molecular pathways. For example, interleukin-6 (IL-6) may seem to represent an effective point of intervention because of its deleterious effects on certain body systems, but blocking the positive effects of IL-6, such as those observed during inflammation, may have serious ramifications.

A greater level of basic and clinical research into areas related to hemoglobin production and maintenance, as well as into inhibitors of hemoglobin production, is required. The subsequent effects of changes in hemoglobin level will be vitally important in the next few years if the quality and quantity of life of older individuals with anemia is to be improved.

From the Center for the Study of Aging, Duke University Medical Center, Durham, North Carolina.

Address correspondence to Harvey J. Cohen, MD, Center for the Study of Aging, Duke University Medical Center, Box 3003, Durham, NC 27710. E-mail: harvey.cohen@duke.edu

JAGS 51 (Suppl): S1, 2003

0002-8614/03/$15.00