

Anemia in the elderly: an important clinical problem

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A paper written by Sgnaolin et al.⁽¹⁾ is published in this issue of the *Revista Brasileira de Hematologia e Hemoterapia*. The authors present a study about the frequency of anemia of 1058 people of 60 years old or more living in a community-based population in Porto Alegre, Brazil. Blood samples were taken from all participants and the hematological parameters [hemoglobin, mean cell volume (MCV), mean corpuscular hemoglobin concentration (MCHC) and red cell distribution width (RDW)] were analyzed. They observed a frequency of anemia of 12.8%, which was higher in women than in men. The majority of anemic patients presented with normocytic and normochromic anemia, but when they evaluated the erythrocyte morphology the anemic population had almost 10 times more microcytosis than the non-anemic subjects.

This is a very important clinical problem as the frequency of anemia in this population can range from 10 to 30%. The large National Health and Nutrition Examination Survey (NHANES III) population study⁽²⁾ showed that the prevalence of anemia increases directly with age; it is 10 to 11% in over 65-year olds and jumps to 26 to 30% in over 75-year olds and is a little higher in men⁽²⁻⁴⁾.

The frequency of anemia can be even higher in patients followed in outpatient clinics due to the increase in different diseases these patients have. An abstract presented in the 2012 Brazilian Congress of Hematology by this author showed a frequency of 36.5% in 96 elderly patients with ages ranging from 65 to 92 years (mean: 76 years) followed in an outpatient clinic⁽⁵⁾.

The symptoms as dyspnea, angina and fainting are more intense in the elderly and the presence of comorbidities exacerbate the consequences of anemia in this population. It is relevant to comment that in the elderly, the lower the level of hemoglobin the higher the morbidity, mainly in those who have heart disease. It has been reported that the mortality of over 60-year-old patients, with myocardial infarction in an intensive care unit was higher when hemoglobin levels were lower. Moreover, the use of erythropoietin and transfusions in these patients reduced the mortality rate⁽⁶⁻⁹⁾.

Anemia significantly affects the daily performance of elderly patients. Some studies show that the capacity of walking, standing up, sitting or getting up from a chair and taking objects is severely impaired in anemic patients^(10,11). An assessment of the quality of life also shows the negative effects of anemia⁽¹²⁾.

The pathophysiology of anemia in these patients is, in the majority of cases, due to a hypoproliferative mechanism, although some of the cases are a result of blood loss, mainly associated to gastrointestinal neoplasms but some cases have a hemolytic origin. The causes of anemia in the elderly can be separated into three groups, each of them counting for about one third of the cases^(2,4,13,14).

The first is the group of chronic, particularly inflammatory and neoplastic, diseases. Anemia in these diseases is caused by the inhibition of the effect of erythropoietin in red cell precursors (interleukins such as interleukin-6 and Tumor Necrosis Factor)⁽⁴⁾, or by blocking of iron in macrophage cells (role of hepcidin)⁽¹⁵⁾ or even a reduction in the red cell lifespan. This affects the number of red cells and leads to normocytic or microcytic anemia with a low reticulocyte count.

A second group is composed of patients who have “nutritional” anemia or anemia due to iron loss, reduced B12 vitamin absorption or folate deficiency. The main causes of iron losses are gastrointestinal, urinary or gynecologic diseases. It is essential to look for blood loss, because, in spite of the anemia being important, the cause of the blood loss will probably be more important⁽¹⁶⁻¹⁸⁾. The levels of B12 and folate are frequently low in the elderly, but deficiency of the first vitamin only accounts for 1 to 2% of the cases of anemia, far less than those related to the iron loss^(4,19,20). An even less important cause is folate deficiency, with a possible reason for this being alcohol abuse⁽⁴⁾.

The third group includes patients with anemia of unknown causes, which may be due to, among other things, the growing frequency of chromosomal abnormalities found in older people. This may explain the higher frequency of neoplasms of hematopoietic tissue in the elderly population such as the myelodysplastic syndromes⁽²¹⁾.

It is important to note that anemia in the elderly is not normal! It is always necessary to investigate the cause and to at least try to reduce the consequences in these patients.

In conclusion, as the number of over 60-year-old people is continuously growing in developed and developing countries, and because of the high prevalence, morbidity and mortality of anemia in this population, it is necessary for physicians in most areas to know the mechanisms, causes and management of anemic patients.

References

1. Sgnaolin V, Engroff P, Ely LS, Schneider RH, Schwanke CH, Gomes I, et al. Hematological parameters and prevalence of anemia among free-living elderly in south Brazil. *Rev Bras Hematol Hemoter.* 35(2):115-8.
2. National Center for Health Statistics. The third National Health and Nutrition Survey (NHANES III, 1988-94) reference manuals and reports. Hyattsville, MD: National Center for Health Statistics; 1996.
3. World Health Organization. Worldwide prevalence of anaemia 1993-2005. WHO Global Database on Anaemia. Geneva: WHO; 2008. Available from: http://whqlibdoc.who.int/publications/2008/9789241596657_eng.pdf.
4. Guralnik JM, Eisenstaedt RS, Ferrucci L, Klein HG, Woodman RC. Prevalence of anemia in persons 65 years and older in the United States: evidence for a high rate of unexplained anemia. *Blood.* 2004;104(8):2263-8.
5. Silva AC, Pereira RC, Cliquet MG. Frequencia de anemia e características hematimétricas em pacientes idosos atendidos no ambulatório de Geriatria da Faculdade de Ciências Médicas e da Saúde da PUCSP [Abstract 114]. *Rev Bras Hematol Hemoter.* 2012;34(Supl 2):89-326
6. Ezekowitz JA, McAlister FA, Armstrong PW. Anemia is common in heart failure and is associated with poor outcomes; insights from a cohort of 12065 patients with new onset heart failure. *Circulation.* 2003;107(2):223-5. Comment in: *CurrCardiol Rep.* 2003; 5(3):213-4; *Circulation.* 2003;108(6):e41-2; author reply e41-2.
7. Cotter DJ, Stefanik K, Zhang Y, Thamer M. Improved survival with higher hematocrits: where is the evidence? *Semin Dial.* 2004;17(3):181-3. Comment in: *N Engl J Med.* 2002;346(10):779-82; *N Engl J Med.* 2001;345(17):1272-4.
8. Wu WC, Rathore SS, Wang Y, Radford MJ, Krumholz HM. Blood transfusion in elderly patients with acute myocardial infarction. *N Engl J Med.* 2001;345(17):1230-6. Comment in: *N Engl J Med.* 2002;346(10):779-82; *N Engl J Med.* 2001;345(17):1272-4.
9. Gabrilove J. Anemia and the elderly: clinical considerations. *Best Pract Res Clin Haematol.* 2005;18(3):417-22.
10. Penninx BW, Guralnik JM, Onder G, Ferrucci L, Wallace RB, Pahor M. Anemia and decline in physical performance among older persons. *Am J Med.* 2003;115(2):104-10.
11. Penninx BW, Pahor M, Cesari M, Corsi AM, Woodman RC, Bandinelli S, et al. Anemia is associated with disability and decreased physical performance and muscle strength in the elderly. *J Am Geriatr Soc.* 2004;52(5):719-24. Comment in: *J Am Geriatr Soc.* 2005;53(4):733-4.
12. Culleton BF, Manns BJ, Zhang J, Tonelli M, Klarenbach S, Hemmelgarn BR. Impact of anemia on hospitalization and mortality in older adults. *Blood.* 2006;107(10):3841-6.
13. Price EA, Schrier SL. Anemia in the elderly: introduction. *Semin Hematol.* 2008;45(4):207-9.
14. Artz AS, Fergusson D, Drinka PJ, Gerald M, Bidenbender R, Lechich A, et al. Mechanisms of unexplained anemia in the nursing home. *J Am Geriatr Soc.* 2004;52(3):423-7.
15. Nemeth E, Rivera S, Gabayan V, Keller C, Taudorf S, Pedersen BK, et al. IL-6 mediates hypoferrremia of inflammation by inducing the synthesis of the iron regulatory hormone hepcidin. *J Clin Invest.* 2004;113(9):1251-3. Comment in: *J Clin Invest.* 2004;113(9):1251-3.
16. Hofbrand A. Essential Haematology. In: Hofbrand A. Hypochromic anemias. 5th ed. Oxford: Blackwell Publishing; 2006. p.28
17. Zago M, Falcão R, Pasquini R, editores. Hematologia. Fundamentos e prática. In: Zago M, Falcão R, Pasquini R. Anemias por insuficiência da medula óssea. São Paulo: Atheneu; 2001.
18. Lorenzi TF. Manual de Hematologia. 4th ed. In: Lorenzi TF. Anemias. São Paulo: Guanabara Koogan; 2006. p.196-294.
19. Serraj K, Federici L, Kaltenbach G, Andrés E. [Nutritional anemias in elderly patients]. *Presse Med.* 2008;37(9):1319-26. French.
20. Carmel R. Nutritional anemias and the elderly. *Semin Hematol.* 2008;45(4):225-34.
21. Guralnik JM, Ershler WB, Schrier SL, Picozzi VJ. Anemia in the elderly: A public health crisis in hematology. *Hematology Am Soc Hematol Educ Program.* 2005:528-32.