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THE IMPACT OF ANEMIA IN PATIENTS WITH CHRONIC HEART FAILURE

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It would seem at the first sight that it is not a direct correlation between anemia and chronic heart failure (CHF), but clinical trials have observed that there are certain aspects of anemia which can influence on evolution of CHF.

It is necessary to understand how the presence of anemia affects the condtition of the patient with CHF, to elucidate the pathophysiological mechanisms between these two diseases and to determine if the severity of CHF can be correlated with the level of hemoglobin and other markers of anemia such as hematocrit, ferritin, transferrin, serum iron, iron saturation, levels of erythropoietin. Moreover, an important aim of this work is to establish if the correction of anemia will lead to the improvement of symptoms of CHF and to determinate which are the therapeutic targets of these two diseases.

According to medical studies the prevalence of anemia in patients with CHF varies from 4 to 60% and it is associated with a severe, medication-resistant cardiac failure. These studies observed that anemia can worsen cardiac function. A low concentration of hemoglobin reduces inhibition of basal endothelium-derived relaxing factor activity. Therefore, this will lead to general vasodilatation and hypotension will stimulate baroreceptor-mediated neurohormonal activation such as sympathetic and renin-angiotensin system and as a result salt and water retention occurs, which will worsen the symptoms of CHF. An interesting thing is that CHF can worsen evolution of anemia too, by releasing of proinflammatory cytokines such as TNF- α, IL1, 6, 10 that inhibit the erythropoietin synthesis at the transcriptional and transductional levels. In this way the vicious circle is formed. Besides all this, anemia causes cardiac stress through tachycardia and its chronicization leads to left ventricular hypertrophy and as a result takes place the apoptosis of cardiomyocytes. In addition to these, studies demonstrated that the rate of mortality in these patients is higher than non-anemic patients, because some researchers affirm that an increase in hemoglobin of 1g/dL reduces the risk of death at 1 year by 40%.

As a conclusion, it is recommended to make screening tests for anemia to all patients with CHF, because a patient with these both diseases needs more hospitalizations and higher doses of diuretics. Moreover, correction of anemia improves cardiac function and it could prevent the progression of CHF.