Erythrocyte CuZn superoxide dismutase activity is decreased in iron-deficiency anemia

Olivares,

Araya,

Pizarro,

Letelier,

Iron and copper are essential microminerals that are intimately related. The present study was performed to determine the effect of iron-deficiency anemia (IDA) and treatment with iron on laboratory indicators of copper status. Hemoglobin, mean corpuscular volume erythrocyte Zn protoporphyrin, serum ferritin, serum copper, serum ceruloplasmin, and erythrocyte CuZnsuperoxide dismutase (SOD) activity were studied in 12 adult women with IDA before and after iron treatment for 60-90 d (100 mg/d Fe, as ferric polymaltose) and in 27 women with normal iron status. Prior to treatment with iron, serum copper and ceruloplasmin were not different between the groups and treatment with iron did not affect these measures. IDA women, before and after treatment with iron, presented a 2.9- and 2-fold decrease in erythrocyte CuZn-SOD activity compared to women with normal iron status ($p < 0.001$). Treatment with iron increased erythrocyte CuZn-SOD activity of the IDA group; however, this change was not s