The Effects of α-Tocopherol in Hemolysis and Oxidative Stress Marker

on Red Cell Membrane β-Thalassemia Major

Background: The accumulation of unpaired α-globin chains in β-thalassemia major patients may clinically create ineffective erythropoiesis, hemolysis, and chronic anemia. Multiple blood transfusions and iron overload cause cellular oxidative damage. However, α-tocopherol, an antioxidant, has been known as a potent scavenger of lipid radicals in the red cell membrane of β-thalassemia major patients.

Purpose: To evaluate the effects of α-tocopherol in hemolysis and oxidative stress on the red cell membrane of β-thalassemia major.

Methods: In this randomized controlled trial, we allocated subjects in the placebo and α-tocopherol groups. Doses of α-tocopherol were based on the recommendation of Institute of Medicine: 4–8 years old 200 mg/day; 9–13 years old 400 mg/day; 14–18 years old 600 mg/day. Hemolysis, oxidative stress, and antioxidant variables were evaluated before and after 4 weeks of consuming either α-tocopherol or placebo, performed prior to blood transfusions.

Figure. Study Protocol