

The Influence of Vitamin E on Platelet Functions and Lipid Peroxidation in β -thalassemia/ Hemoglobin E Patients

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Abstract.

A double-blind, cross-over, placebo-controlled study of the influence of vitamin E on platelet functions and lipid peroxidation was performed on nine splenectomized and sixteen nonsplenectomized β -thalassemia/ hemoglobin E (β -thalassemia/ HbE) patients. The patients were supplemented daily with vitamin E (525 IU) for three months. The functions of platelets were assessed by ADP induced platelet aggregation and platelet ATP release. Plasma α -tocopherol, plasma Thiobarbituric reactive substances (TBARs) and serum ferritin levels represent antioxidant status, lipid peroxidation status and iron status of the patients, respectively. Before experimentation, all patients had an iron overload and low plasma α -tocopherol levels. The splenectomized patients, who were severely overloaded with iron, had high plasma TBARs levels which showed negative correlation with plasma α -tocopherol. In addition, their platelets were more reactive to ADP than were those of the nonsplenectomized patients. Three months of daily vitamin E (525 IU) supplementation caused a significant increase of plasma α -tocopherol level and reduction of plasma TBARs level of all patients. As expected, serum ferritin levels of the patients were not altered. Vitamin E reduced the platelet reactivity of the splenectomized patients toward normal. The influence of vitamin E on platelet function may result in preventing/ delaying hypoxemia and pulmonary occlusion which commonly occur in splenectomized β -thalassemia/ HbE patients.

Key Words. Vitamin E, platelet reactivity, lipid peroxidation, splenectonized β -thalassemia/ hemoglobin E patients