

ABSTRACT**Analysis of dl- α -Tocopherol as Antioxidant on Malondialdehyde Level in Pediatric Patients with β -Thalassemia Major**

BACKGROUND – Thalassemia is a hereditary form of anemia that affects the synthesis of hemoglobin. The management of therapy in patients with β -thalassemia major which patients should receive continuous blood transfusions and increased iron absorption from the digestive tract causes excess iron in the body. This will lead to an increase of free iron level that triggers Radical Oxygen Species (ROS). MDA measurement is widely used as an indicator of lipid peroxidation. On the other hand, the risk of oxidative damage can be reduced by antioxidant, one of them is dl- α -tocopherol (Vitamin E) that is a fat-soluble vitamin with high potential antioxidant.

OBJECTIVE – To analyze the effect of the dl- α -tocopherol administration on decrease of MDA serum level on pediatric patients with β -thalassemia major.

METHOD – A longitudinal observational study design for one group without comparison was conducted to examine the use of dl- α -tocopherol in decreasing MDA serum levels on children patients with β -thalassemia major. The inclusion criteria were patients who rely on blood transfusions, received only one type of iron chelating agents during the study period, the clinical condition is stable, and had completed the informed consent. In the course of the study of 21 patients there were variations in patient compliance in taking dl- α -tocopherol tablet dosage 200 IU once-daily for one month, only 11 of 21 patients consumed 30 tablets of dl- α -tocopherol 200 IU (total dose of 6000 IU) in the 1-month study, and only data from those 11 samples will be analyzed further. MDA serum level was measured before and after administration of dl- α -tocopherol and patient's characteristics of subjects was obtained for additional information.

RESULTS – Serum levels of MDA at pre-administration of dl- α -tocopherol was 1239.40 ± 502.55 ng/mL with a range of 216.95 to 2297.30 ng/mL, whereas in the group post-administration of dl- α -tocopherol, MDA serum level was 786.49 ± 704.88 ng/mL with a range of 6.54 to 1958.60 ng/mL.

CONCLUSION – There was no significant difference in MDA serum level in the group pre- and post- administration of dl- α -tocopherol ($p = 0.15$).

KEYWORDS – β -thalassemia major, Vitamin E, dl- α -tocopherol, MDA, Antioxidant, Radical Oxygen Species (ROS), Lipid Peroxidation