

A Note On The Total Antioxidant Activity In The Subjects With Glucose-6-Phosphate Dehydrogenase Deficiency

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Abstract

Glucose-6-phosphate dehydrogenase (G6PD) deficiency is a common inherited enzyme deficiency. This disorder causes hemolytic anemia, which is often enhanced by an identifiable chemical trigger or infection [1,2]. G6PD is the key rate-limiting enzyme in the pentose pathway and the expression of its gene has been shown to be redox-sensitive [3] Physiologically, G6PD plays an important role in cellular redox homeostasis, which is crucial for cell survival [4]. Cheng et al said that G6PD status determined the response of cells exposed to nitric oxide (NO) donor [4]. Overexpression of G6PD in vascular endothelial cells decreases reactive oxygen species accumulation in response to exogenous and endogenous oxidant stress and improves levels of bioavailable NO [5].

Here the authors investigated the antioxidant activity in a sample of healthy subjects comparing to subjects with G6PD deficiency. A total of 21 volunteer subjects were included into this investigation. All were screened for the G6PD deficiency by a biochemical assay kit 345 – A, (Sigma Co.) and 2 were detected to have G6PD deficiency. All were studied for the antioxidant activity by the Trolox equivalent antioxidant capacity (TEAC) method [6]. The average

antioxidant activity in the healthy subjects and subjects with G6PD deficiency are 3.35 ± 0.27 mM Trolox equivalent and 3.17 ± 0.05 mM Trolox equivalent respectively. It seems that the antioxidant level in the subjects with G6PD deficiency might not different from the healthy subjects. However, the number of subjects in this study is rather few. Further larger study is recommended before final conclusion.

References

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