Correlation between Nitric oxide (NO) & Asymmetric dimethylargininie (ADMA) Hemoglobin Concentration in sickle cell patients

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Abstract

Background and objectives: The importance of Nitric oxide (NO) and Asymmetric dimethylargininie (ADMA) in pathophysiology of Sickle cell disease (SCD) is being increasingly clarified. Since very few of the studies have been conducted in the word and no study has been carried out in Iran, especially in Khuzestan province where is the main center of Sickle Cell disorder (SCD) in Iran, We decided to conduct the present study.

Material and Methods: EDTA anticoagulated plasma samples were obtained from 35 healthy controls (Hb AA), 35 heterozygous (HB AS) and 35 homozygous (HB SS) sickle cell anemia patients. Plasma concentration of NO was measured by Colorimetric and Griess reaction and the concentration of ADMA by employing ELISA method. Then the results were analyzed by t-student test and One Way ANOVA.

Results: There is a positive significance correlation between Hemoglobin (Hb) and NO in SS (r=0.703) and AS (r=0.366) groups. Also, a negative correlation between Hb and ADMA in SS (r=-0.786) and AS (r=-0.478) groups is seen. No correlation is found between these parameters in AA group.

Conclusion: The prevention of Hb concentration decrease and prescription of NO donors and (or) ADMA disintegrators can be helpful for improving clinical signs of sickle cell patients.

Key words: Nitric oxide (NO), Asymmetric dimethylargininie (ADMA), Sickle cell disease (SCD).