Smith I Jaja et al., J Blood Disorders Transf 2014, 5:8
http://dx.doi.org/10.4172/2155-9864.S1.006

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Hematology & Blood Disorders
September 29-October 01, 2014 DoubleTree by Hilton Baltimore-BWI Airport, USA

L-Arginine supplementation enhances antioxidant activity and erythrocyte integrity in sickle cell anemia subjects

Smith I Jaja, Kehinde M O, Ogungbemi S I and **Anigbogu C N**
University of Lagos, Nigeria

The effect of oral, low-dose L-Arginine supplementation (1g/day for 6 weeks) on total antioxidant enzymes activity, hematological parameters and osmotic fragility of red blood cells was investigated in sickle cell disease sufferers. Twenty eight sickle cell anemia (SCA) subjects were recruited for the study. Five milliliters of blood was withdrawn from an ante-cubital vein for the estimation of plasma arginine concentration ([R]), total antioxidant enzymes (TAE) activity, malondialdehyde concentration ([MDA]), RBC count, [Hb], PCV, MCHC, MCV, MCH and percent irreversibly sickled cells (%ISC)) and osmotic fragility of red blood cells in the subjects. L-Arginine increased [R] ($p<0.001$), TAE activity ($p<0.05$) and MCV (<0.05) but reduced plasma [MDA], MCHC, MCH and %ISC ($p<0.001$ respectively). Δ[R] correlated positively with ΔTAE ($r=0.8$) and negatively with Δ [MDA] ($r=-0.7$) and Δ %ISC ($r=-0.5$).Also ΔTAE activity correlated negatively with Δ [MDA] ($r=-0.7$) and Δ %ISC ($r=-0.6$). Supplementation shifted the osmotic fragiligram to the right and reduced the concentrations of NaCl at which initial and complete lyses of erythrocytes occurred. Study showed that low-dose, oral L-Arginine increased total antioxidant enzymes activity, red blood cell resistance to osmotic lysis but reduced red cell density and [MDA] in SCA subjects.

Biography

Smith I Jaja obtained PhD in Physiology from the University of Lagos in 1991 and has been teaching physiology to medical, dentistry, pharmacy, pharmacology and physiology undergraduate students at the University of Lagos, Lagos, Nigeria since then. He has vast administrative experience and has supervised several students for the MSc and PhD degrees. He has also taught at the Department of Physiology, School of Medicine of the University of South Carolina, Columbia, USA and the Department of Physiologyof the University of Ghana, Accra, Ghana. He has about 50 publications in international journals.

sjaja2012@yahoo.com