ANTIOXIDANT ROLE OF VITAMIN C IN ALUMINUM INDUCED OXIDATIVE STRESS IN RAT BRAIN

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Aluminium is naturally occurring metal that has been utilized by human for a very long time. In recent years, aluminium salts have been suspected of playing role in neuro-degenerative disorders, such as Alzheimer’s and Parkinson’s disease and prompted concerns about aluminium contamination from aluminium cooking utensils and use of alum to treat drinking water supply that could lead to toxicity. The present study investigates the antioxidant role of vitamin C in aluminium induced oxidative stress in rat brain. Experimental rats were randomly divided into six groups (n=5/group). Groups of rats were exposure aluminium chloride 10 mg per kg body weight with or without vitamin C supplementation for 21 days. The results obtained showed a statistically significant (P<0.05) increase in Aluminium blood levels and decrease in glutathione level in the brain and blood in rat treated with aluminum alone. But the groups supplemented with various concentration of vitamin C showed significant (P<0.05) decrease in aluminium concentration compared to the aluminium alone treated group, and a significant increase (P<0.05) in brain and plasma glutathione content. The supplementation also resulted in significant increase (P<0.05) in plasma protein in vitamin C treated groups compared to aluminium alone treated group. A significant decrease was also observed (P<0.05) on malondialdehyde level in both liver and brain of the rat. Supplemented with vitamin C compared to control and aluminium alone treated groups. Therefore, from this study, it was demonstrated that vitamin C may confer protection against aluminium induced oxidative stress.

Keywords: Aluminium, Vitamin C, Glutathione, Malondialdehyde