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ANTIOXIDANT ACTIVITY IN EPILEPTIC CHILDREN FROM LAHORE, PAKISTAN

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ABSTRACT – Published studies that compare antioxidant status of healthy, newly diagnosed and Valproic acid (VPA) treated epileptic children are few and controversial. As to our knowledge, no such study has been reported from Pakistan. This study was planned to compare the antioxidant status of healthy individuals with both untreated and VPA-treated patients in Lahore, Pakistan. Thirty six newly diagnosed and VPA treated epileptic children and ten healthy volunteers of either sex, matched by socioeconomic status and ages were selected for the comparative studies. Erythrocytic glutathione peroxidase (GPx) and catalase (CAT) levels, percent superoxide scavenging activity, and total antioxidant activity (TAA) employing ferric reducing antioxidant power (FRAP) and 2, 2'-azionbis (3-ethylbenzothiazoline-6-sulphonic acid) (ABTS) radical cation scavenging activity were evaluated. Statistical analyses were carried out by one-way analysis of variance (ANOVA), followed by Duncans multiple range test (DMRT) as post hoc test. The probability > 0.05 was considered as significant. It was found that there was a significant decrease in the antioxidant levels of both erythrocytes and plasma of epileptics as compared with the control. The value of GPx was found to be significantly greater in VPA-treated group as compared to the untreated group. On the contrary a significant decrease in CAT values is seen in the VPA-treated group as compared to the untreated epileptic group. This suggests that oxidative stress is implicated in the pathogenesis of epilepsy and Valporate therapy compromises the antioxidant system of the body. It was observed that overall antioxidant status of untreated epileptics is better than the VPA treated group.

Key-words : Free radicals, oxidative stress, Pakistan, valproic acid (VPA), idiopathic epilepsy.