

Study on serum Copper and Zinc level of children with epilepsy during long term therapy with anticonvulsants

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Abstract: Epilepsy is a disorder of brain electrical activity that may lead to recurrent seizures. Changes in serum levels of some trace elements such as Zinc and Copper can be observed in patients with Epilepsy. The aim of this study was evaluating the serum levels of copper and zinc in patients with epilepsy on long term treatment of anticonvulsant agents in Tabriz children's hospital. In a case control descriptive –analytical study in the children's diseases department of Tabriz children's hospital we evaluated the serum levels of copper and zinc in patients with epilepsy and compared them with healthy subjects. The two groups were matched for age, gender, weight and height. The mean zinc level in children with epilepsy is 0.30 ± 0.13 and 0.93 ± 0.25 $\mu\text{g/ml}$ respectively which was lower meaningfully in epileptic patients. The copper level in patients with epilepsy was 1.06 ± 0.36 $\mu\text{g/ml}$ and in control group was 0.39 ± 0.21 $\mu\text{g/ml}$ respectively which was significantly higher in the case group. Serum copper levels in epileptic children under drug treatment are higher than in healthy children. Also, serum zinc levels in these patients are significantly lower than in healthy people. The use of one drug or multiple drugs in the treatment of epileptic patients have made a significant difference in the levels of serum copper and zinc and also the serum level of Zinc in patient under treatment with Phenobarbital, Phenytoin, Carbamazepine, Valproate sodium, Clonazepam, Topiramate and Primidone was significantly lower and the serum level of Copper in patients winder treatment by Phenobarbital, Phenytoin, Carbamazepine and Valproate sodium was significantly higher.

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