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ROONGPETCH KEOWKASE : FOLIC ACID SUPPLEMENTATION
IN EPILEPTIC PATIENTS WITH FOLATE DEFICIENCY. THESIS ADVISORS :
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The study was performed to examine the effect of folic acid supplementation on antiepileptic drug concentrations and to evaluate the optimum dose of folic acid supplementation in epileptic patients with folate deficiency. Serum and red blood cell folate level was determined in 87 epileptic patients by using microbiological assay. A subnormal folate concentration in serum, red blood cell (RBC), or both was observed in 89% (77/87) of the patients. The cut-off point for subnormal serum and RBC folate was 6 and 160 ng/ml, respectively. Among these, 41 patients were randomly divided to receive 2.5 mg of folic acid (group A, N=20) and 5 mg of folic acid daily for 3 months (group B, N=21). Thirty-six patients (group A = 18, group B = 18) completed the study. Their mean ages were 35.94 ± 13.30 and 32.44 ± 13.03 years, respectively. These patients were being treated with conventional antiepileptic drugs (phenytoin, phenobarbital, carbamazepine and valproic acid) either monotherapy or polytherapy. All objective data including serum and RBC folate level, B12 level, antiepileptic drug concentration, albumin level, seizure frequency, hematological and mental state examination were assessed at baseline and after 3 months of folic acid supplement. Serum and RBC folate levels were significantly increased ($p < 0.01$) when compared between before and after folic acid supplement in both groups. There were not significant differences ($p > 0.05$) in phenytoin, phenobarbital, carbamazepine and valproic acid concentrations when compared between before and after folic acid supplement for both groups. One patient in group A had a marked increase in seizure frequency with a decrease in blood level of phenytoin to subtherapeutic level. Although, there was not a significant difference ($p > 0.05$) for mental state examination score between before and after folic acid supplement, a majority of these patients showed an improvement in their well-being, memory, and alertness. Folate deficiency resulting from conventional antiepileptic drugs is common and may lead to macrocytic anemia. Therefore, folic acid should be supplemented in epileptic patients especially in patients receiving phenytoin, phenobarbital and carbamazepine. The results of this study also demonstrate that both 2.5 mg and 5 mg of folic acid were sufficient to saturate folate body store. In addition, this supplement did not interfere with the level of antiepileptic drug. Thus, we recommend that folic acid should be used as a supplement in epileptic patients receiving conventional antiepileptic drugs especially phenytoin, phenobarbital and carbamazepine.