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The impact of antiepileptic drugs on vitamin levels in epileptic patients

Background: The impact of antiepileptics on serum vitamin levels is controversial and uncertain. With no clear conclusions on the impact of antiepileptics on serum levels of vitamins, there is a need for further clinical studies in order to ascertain the impact of old and newer antiepileptic drugs on serum levels of vitamins in epileptic patients, thus accomplishing a suitable usage of vitamin supplementation.

Objective: The intention of the present research is to confirm the hypothesis of whether or not vitamin levels are altered with antiepileptic drugs. The study also aims to reveal which vitamin levels are particularly more altered, are vitamin levels affected by gender and the type and number of antiepileptics used.

Methods: The present research was piloted in collaboration with the Department of Neurology in Qilu Hospital of Shandong University. A total of 63 serum samples of epileptic patients receiving antiepileptics as monotherapy or polytherapy were requested for analysis of nine vitamin serum levels. Total nine vitamins (B1, B2, B6, B9, B12, A, C, D and E) in epileptic patients receiving antiepileptic drugs were analyzed. The serum results of all vitamins were compiled and evaluated with SPSS.

Results: It was alarmingly found that serum levels of vitamin D were particularly very low in almost all (90%) epileptic patients in this study. Notably, serum levels of vitamin C and vitamin B1 were also below reference range in 72% and 46% epileptic patients, respectively. The remaining vitamins were almost in reference range for most of the patients. In our study, mean and frequency of vitamin D, C and B1 levels do not vary too much among different gender groups. The patients receiving newer antiepileptic drugs displayed a slightly increased serum vitamin D levels in comparison to the patients receiving older antiepileptic drugs. We found low vitamin D, C and B1 serum levels in patients who were on monotherapy as in comparison with patients on polytherapy.

Conclusion: The most significant and surprising finding of this study revealed that serum vitamin D levels in particular were very low in almost all patients and in some patients' vitamin B1 serum levels were also below the reference range. More importantly, it is first time reported here that vitamin C serum levels were also below reference range in the majority of these Chinese epileptic patients. It is recommended that all these vitamins should be regularly monitored in addition to therapeutic drug monitoring of antiepileptic drugs. Additional clinical trials are required for further evaluation. It is also recommended that epileptic patients with low serum levels of these vitamins may be prescribed vitamin supplementations with antiepileptic drugs in order to control their seizures more effectively and efficiently.

Notes:

Biography

Abdul Sami Shaikh has a PhD degree in Pharmacology and Master's in Pharmaceutical Management. He is currently working as a Chairman and Associate Professor at Shah Abdul Latif University, Pakistan. He also worked at PNS SHIFA (Teaching Hospital) and PNS RAHAT (Largest arms forces Hospitals) Pakistan.

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