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Medical nutrition therapy in epilepsy: An overview of the alternative diets in refractory epilepsy and probable side effects of anti-epileptic drugs and ketogenic diets on nutritional statue

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Epilepsy is a neurological disorder that is characterized by interruption of neuronal normal functions. Although, many antiepileptic drugs (AEDs) have been introduced to manage epileptic attacks, but alternative treatments should be considered in some patients who are resistant to AEDs. ketogenic diets and two type of its modifications including low glycemic index treatment and modified Atkins diet, which have lesser and well-controlled complications than KD, have been recommended in refractory epilepsy. However, the AED and alternative diets have some adverse effects on nutrients. Hypocalcemia and hypomagnesaemia have been seen in patients on KD. Some AEDs change metabolism and absorption of many nutrients. Reduced bone mineral density resulting from vitamin D deficiency due to increased activity of cytochrome p450, reduced absorption of Ca from gastrointestinal tract and secondary hyperparathyroidism, megaloblastic anemia and mental and cognitive deficits resulting from lower serum level of folate and vitamin B12 and reduction in the level of biotin, vitamin B6, vitamin A and vitamin K are the examples of these effects. Furthermore, serum deficiency of minerals such as selenium, copper, and zinc have been detected in some studies, depends on the type of AED including enzyme-inducing and not inducing AEDs. So, epileptic patients are in higher risk of nutrient deficiency and its unwelcome effects. According to our review, assessment of mentioned diets and AEDs which may induce nutritional deficiencies are necessary. In addition, serum levels of nutrients should be monitored in these patients. Then nutritional deficiencies must be compensated with precise supplementation. We recommend designing studies for obtaining the appropriate compound of vitamins and minerals such as vitamin D, A, B complex, Ca, Sel and Zn.

Biography

Danesh Soltani is a Medical student at Tehran University of Medical Science. He has clinical research interest in the field of Neurological Disease, particularly Epilepsy and Multiple Sclerosis.

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