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Ketogenic Diet: A Novel Strategy for Intractable Childhood Epilepsy

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ABSTRACT

Epilepsy is a disabling and common neurological disease, which can be controlled successfully with one or more antiepileptic drugs. Some of these patients are not well responders to drug treatment, so it is necessary to search for alternative treatments for epilepsy such as palliative surgery, neuromodulation, and a ketogenic diet (KD).The keto diet works by altering a person's metabolism therefore is generally effective in all types of seizures but particularly in atonic, myoclonic and atypical seizures The ketogenic diet is a restrictive diet which consists of fat to protein to carbohydrate in ratio 4:1 by weight with fat accounting for 90% of source of energy. The diet mimics biochemical changes of starvation (ketosis) with major shift in cerebral energy metabolism. The utilization of energy other than glucose for brain metabolism can prevent seizures by providing acetyl CoA directly to TCA cycle without prior glycolysis. The efficacy of KD is variable with 90% reduction in overall seizure in one third, 50% reduction in half and almost completes seizure control in remaining. Additionally, improvement in cognition, behavior, sleep pattern, alertness with reduction of poly antiepileptic dosage add to indirect benefits of KD. Although primarily indicated for medically refractory epilepsy of childhood, there are emerging and encouraging reports of its beneficial role in conditions like amyotrophic lateral sclerosis, Alzheimer dementia, Parkinson's disease and even depression.

Keywords: Ketogenic diet, Refactory epilepsy, Ketosis, Childhood

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