



Ketogenic Diet Therapy for Epilepsy Management

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Use of the ketogenic diet (KD) for epilepsy treatment was popular in the early 20th century before the advent of antiepileptic drugs (AEDs). With the development of more and more AEDs, the KD was nearly abandoned due to unpalatability and inconvenience. Although AEDs have been widely used, more than 40% of patients with epilepsy cannot be controlled well. Yet others are controlled but with adverse side-effects. Popularity of the KD revived in the 1990s for treatment of multiple AED-resistant epilepsy patients. Results were promising with 50% of patients achieving seizure reduction by more than 50%. Ten to twenty percent were even found to be seizure free after treatment. An international consensus suggested trying the KD after failure of 2 kinds of AEDs.^[1] If the KD is used prior to any AED treatment, the efficacy may be higher than drug therapy as suggested by Wang & Lin.^[2]

The unpalatability of the KD is due to high fat composition and is one important factor in its unpopularity. This could be partially solved with medium chain triglyceride (MCT) as the major fat source. The MCT-KD therapy was introduced by Liu and Wang.^[2] Further modifications such as the Modified Atkin diet and Low glycemic index treatment make dietary therapy easier and more palatable than the classical ones.^[3]

While the mechanism of action of the KD has not yet been fully elucidated, ketones seem not to be the only contributing factor. The mammalian target of rapamycin pathway may also be related as has been suggested by Wong.^[4,5] The KD could be not only anti-epileptic, but also anti-epileptogenic. The classic name, ketogenic diet therapy, may more appropriately be replaced by the name metabolic diet therapy.

Beyond epilepsy, there are other promising therapeutic targets for the KD. These include: malignant brain neoplasm, Parkinson disease, Alzheimer's disease, amyotrophic lateral sclerosis, and autism.^[1]

This special edition includes three review articles on current advances in ketogenic diet therapy for epilepsy management. Authors Dr. Kossoff from the Johns Hopkins Medical Center in Baltimore, Maryland, USA, Dr. Liu from the Hospital for Sick Children in Toronto, Ontario, Canada and Drs Wang and Lin from Chang Gung Children's, Taoyuan, Taiwan are all well recognized experts in the field. The chief editor would like to thank them for their contributions.

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