

PEDIATRICS AND NEONATOLOGY

July 25-26, 2019 | Amsterdam, Netherlands

Subhasree Ray, Curr Pediatr Res 2019, Volume 23



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PAEDIATRIC REFRACTORY EPILEPSY AND VARIOUS KETOGENIC DIET – AN ALTERNATIVE NON-PHARMACOLOGICAL TREATMENT STRATEGY

BIOGRAPHY

Subhasree Ray is the 'Corporate Dietitian' of Reliance Industries Limited, heading the corporate nutrition department of the organization across India. She is a PhD scholar of Ketogenic Diet with 8 years of experience in Nutrition science and Medical Nutrition Therapy. She has worked with Govt. of India in eradication of child malnutrition for 2 years. She is a public speaker of Nutrition, health, wellness and lifestyle management. She has authored 17 scientific research articles in various national and international journals. She has also presented her research work in 18 conferences, workshops and seminars. She has received 'Young Researcher Award' for her research in probiotic and HIV. She is an advisor for many organizations and companies dealing with food and nutrition as their major component. She is the reviewer and editorial board member of two reputed international journals and one national journal. She is the lifetime member of Indian Dietetic Association, Nutrition Society of India and Probiotic Association of India.

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Ketogenic diet is a high fat, moderate protein, very low carbohydrate, ratio specific therapeutic diet. The diet is used as a non-pharmacological, alternative mode of treatment for the paediatric patients suffering from refractory epilepsy. As per International League Against Epilepsy (ILAE) refractory or pharmaco-resistant epilepsy is defined as failure of adequate trials of two tolerated, appropriately chosen and used antiepileptic drug schedules (whether as monotherapies or in combination) to achieve sustained seizure freedom. For children with glucose transporter type 1 deficiency or pyruvate dehydrogenase complex deficiency, ketogenic diet is the treatment of first choice. The principle of the diet is to utilize fatty acid derived ketone bodies as the primary source of energy by replacing glucose. In clinical practice there are several forms of ketogenic diet based on ratio and composition. The efficacy of ketogenic diets has been established by numerous randomized controlled trials. The classical ketogenic diet consists of dietary saturated fat and is based on a ratio of 3:1 or 4:1 (fat:[carbohydrate + protein]). In Polyunsaturated fatty acid ketogenic diet (PUFAKD) polyunsaturated fats like omega-3 and omega-6 are used to produce ketone bodies. In a randomized control trial by Yehuda et al, it has been shown that provision of PUFAKD with a ratio of 2.8:1 (omega 3:omega 6) has been proven most beneficial in reducing seizure frequency among children with refractory epilepsy. Medium-chain triglyceride (MCT) based ketogenic diet uses MCTs like coconut oil as major source of fat in daily diet. MCT based ketogenic diet is less restrictive and provides similar benefits as classical ketogenic diet. All mode of ketogenic diets are safe and easy to administer in any outpatient setting. The diet has some reported side effects which can be managed by close monitoring, supplementation and regular follow up. The compliance for ketogenic diet is low but inclusion of various options could change the monotony and increase compliance rate. The administration of ketogenic diet requires qualified dietitian, neurologist, and psychologist on board for error free experience with maximum outcome.