Efficacy of Ketogenic Diet therapies in Lennox-Gastaut Syndrome: A Prospective Cohort Study

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INTRODUCTION

- Lennox-Gastaut Syndrome is a severe epileptic encephalopathy and one of the common cause of drug-refractory epilepsy in children
- LGS accounts for approximately 1%– 2% of all persons with epilepsy
- Most common age of presentation is between 3-5 years of age and 20% cases evolve from infantile spasms syndrome [1]
- Hypoxic-ischemic brain injury is the most common etiology in LMICs [2]
- Ketogenic Diet is effective in substantially decreasing difficult-to-control seizures and should be offered to children with drug-resistant epilepsy after unsuccessful treatment trials of two antiseizure medications [3]
- Less restrictive ketogenic diets: Modified-Atkins Diet and Low Glycemic Index Treatment are equally efficacious in drug-refractory epilepsy [4]
- The ketogenic diet is efficacious in the treatment of LGS, with approximately one-half of children responding at 12 months of therapy
- Based on the patient preferences and clinical status, appropriate type of ketogenic diet should be chosen

OBJECTIVES

- To evaluate the efficacy of ketogenic diet in children with Lennox-Gastaut Syndrome

MATERIALS AND METHODS

- **Study type:** Prospective cohort study
- **Place of study:** Center of Excellence & Advanced Research For Childhood Neurodevelopmental Disorders, Department of Pediatrics, All India Institute of Medical Sciences, New Delhi, India
- Children fulfilling the following elctro-clinical criteria for LGS were enrolled:
  - Multiple types of drug- resistant seizures with onset prior to 18years
  - Cognitive and often behavioural impairments
  - Diffuse slow spike- and- wave and generalized paroxysmal fast activity on EEG
- Written parental consent
- Classic Ketogenic diet, Low Glycemic Index Treatment or Modified Atkins Diet was started
- Patients were followed up telephonically and at outpatient visit to ensure compliance

RESULTS

- **N= 118; Age range: 2 - 12 years**
- **Diet type:**
  - Classic Ketogenic diet - 26/118
  - Low Glycemic Index Treatment - 47/118
  - Modified Atkins Diet - 45/118
- **At 6 months of follow up using intent to treat analysis following results were seen:**
  - 8 (6.8%) - complete seizure freedom
  - 50 (42.4%) - more than 50% seizure reduction
  - 40 (33.9%) - less than 50% seizure reduction
  - 18 (15.3%) - No change in seizure frequency

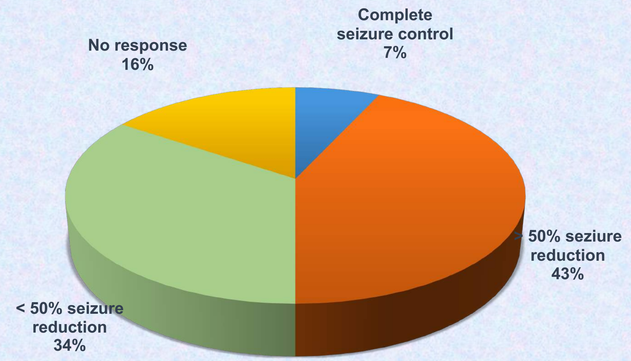

Figure 1: Response to dietary therapy in LGS

CONCLUSIONS

- More than 50% children showed more than 50% seizure reduction on one of the ketogenic diets in LGS
- Ketogenic diet shows very promising results in LGS
- Dietary therapy should be considered early in children with LGS.

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