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Compliance of a Ketogenic Diet in Children With Decreased Refractory Epilepsy

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BACKGROUND

- Epilepsy is a devastating neurological disorder that is characterized by recurrent and unprovoked seizures.
- There are approximately 50 million people living with epilepsy worldwide, and of that number half are children.
- Intractable/ refractory epilepsy refers to seizures that remain uncontrolled despite treatment with two or more first-line epileptic drugs (AEDs), administered serially as monotherapies or in combination, with the dose reaching the maximum tolerated dose for an appropriate treatment course.
- Children who are diagnosed with refractory epilepsy are more susceptible to further neurological problems.
- Research suggests the ketogenic diet as an alternative method of treating those children with refractory epilepsy.
- The Ketogenic diet is a strict high-fat, adequate-protein, and low-carbohydrate diet that uses long chain triglycerides, usually applied in a ratio of 4:1 (fat: protein and carbohydrates).
- The children who have maintained compliance of a ketogenic diet have seen differences in their otherwise intractable epilepsy.



REFERENCES

Please see attachment.

PUPOSE

- To explore what research has been conducted regarding the effectiveness of a ketogenic diet in treating children with refractory epilepsy.
- To recommend the ketogenic diet for pediatric patients who are experiencing otherwise uncontrollable seizures, despite pharmacological therapy.



RESEARCH QUESTIONS

1. What are the physiological effects of the ketogenic diet on children with refractory epilepsy?
2. Is the Ketogenic diet an effective method to decrease and treat refractory epilepsy in children?
3. How can children with refractory epilepsy maintain compliance of a ketogenic diet?

METHODOLOGY

The design of this study is an integrative literature review intended to analyze the effectiveness of a ketogenic diet in children with decreased refractory epilepsy. Literature was obtained from two computerized databases that included PsycINFO and Cumulative Index to Nursing and Health Literature (CINAHL). Sources were gathered which included the key terms *ketogenic*, *ketogenic diet*, *epilepsy*, *refractory epilepsy*, *refractory epilepsy treatment*, *ketogenic diet for refractory epilepsy*.

NURSING CONSIDERATIONS

Nurses should provide holistic care to children with refractory epilepsy by educating the patient and the family on the benefits of the ketogenic diet as a long-term management of refractory epilepsy. Nurses should also deliver acute dietary interventions by having the patient maintain a ketogenic diet. A nurse needs to know the physiological effects of the ketogenic diet for children with refractory epilepsy and the methods to keeping them compliant on the ketogenic diet.

RESULTS

- The ketogenic diet switches the body's primary fuel source from glucose to ketones and maintain low, stable glucose and insulin levels.
- Changes in biogenic amines and amino acids in cerebrospinal fluid should be considered as potential mechanisms for ketogenic diet and useful predictive factors for ketogenic diet efficacy.
- The ketogenic diet is a safe and effective interdisciplinary approach to treating refractory epilepsy in children.
- Significantly, more children treated with the ketogenic diet had seizure reduction within days of initiating the change in diet.
- The ketogenic diet tends to be associated with improved neurobehavioral development in children with refractory epilepsy, and the improvements is more significant with prolonged treatment.
- Due to the ketogenic diet strictness, children's compliance depends on the type of food consumed, patient population, and participation of family.

CONCLUSION

There are numerous studies that found that children with a ketogenic diet ratio of 4:1 (fat: protein and carbohydrates) have seen more positive results with an overall decreased number of seizures within approximately 15 days. As a result, the ketogenic diet can be considered as an option for children with refractory epilepsy. Compliancy of the ketogenic diet in children can be difficult due to the strictness of the diet. But, for children on the ketogenic diet, compliancy of the diet is greatly determined by the family participation in treatment.

