Abstract

Title: Diatery treatment of Epilepsy. Can the modified Atkins diet replace the ketogenic diet?

Author: Linnea Hedlund and Ariane Wästgärds

Supervisor: Heléne Bertéus Forslund

Examiner: Anna Winkvist

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Background Onset of epilepsy can occur at any age but is most common in the early childhood years. It has been known for a long time that fast, leading to ketosis, may influence the occurrence of epileptic seizures. Dietary treatment is an option for patients who do not respond well to antiepileptic drugs. The ketogenic diet, which is high in fat and low in protein and carbohydrates, has been utilized since the 1920’s in order to reduce epileptic seizures. The modified Atkins diet is less restrictive in regards to protein and carbohydrates. It is therefore interesting to examine whether both diets may achieve the same treatment outcome.

Objective The aim of this systematic review is to compare the effects of the modified Atkins diet with the effects of the ketogenic diet among children with epilepsy with regards to seizure reduction. Compliance and adverse effects will also be reviewed.

Search strategy Scientific articles where found using the databases PubMed and Scopus.

Selection criteria Human studies on children 0-18 years that compared the modified Atkins diet with the ketogenic diet in relation to seizure reduction were included. Studies that compared the effect on seizures, using two diets with different carbohydrate-content, were included as well. Case-studies on two children or less were excluded.

Data collection and analysis The articles were selected according to formalized criteria for inclusion and exclusion. The quality of the articles were evaluated separately using SBU:s Granskningstjänst för randomiserad-kontrollerad prövning or Granskning- och dataextraktionsmall för kohortstudier . The results of the studies put together, were evaluated according to the GRADE-system.

Main results The results are based on four studies. The quality of the four studies put together was low (++). The results of the studies are relatively homogenous, with an indication that the ketogenic diet achieves a slightly higher reduction in seizure frequency. The modified Atkins diet achieved >50% seizure reduction in 20-70% of the children. The ketogenic diet achieved >50% seizure reduction in 60-70% of the children. The modified Atkins diet appears to have the same effect in some children. No significant differences in adverse effects or tolerance were found in the studies. Compliance was not compared between the diets and may thus not be evaluated.

Conclusion The evidence that the modified Atkins diet can replace the ketogenic diet is low. There is no evidence to suggest that adverse effects differ between the diets. Compliance has not been evaluated and cannot be reviewed.