

Nutritional Therapy: Literature Review

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Nutritional Therapy

Nutrition is the cornerstone for achieving adequate health and preventing illness, but there needs to be more research on the multidimensional approach that nutrition can play in treatment. Nutritional therapies such as the ketogenic diet transform how people think about food. Nutrigenetics studies the relationship between nutrition and gene expression, both influenced by the environment. This idea suggests that diseases can be prevented and even reversed by adhering to a specific diet. The use of nutritional therapies helps to acquire and sustain an optimal state of health (Panoff, 2020).

Inverse relationship between brain glucose and ketone metabolism in adults during short-term moderate dietary ketosis: A dual tracer quantitative positron emission tomography study

The brain relies on glucose to function. Ketones are an alternative energy source for the brain when there is a decrease in glucose. This article explores whether a ketogenic diet can be sustainable over a long period. Although following a ketogenic diet has been shown to affect epilepsy significantly, it is uncertain how it will affect brain energy metabolism (Courchesne-Loyer et al., 2016).

Key Points

The key points that the author is addressing are if there are any changes in the brain from short-term ketoacidosis. The most critical information in the article is whether or not the brain can function the same way on plasma ketones as it can on plasma glucose. The research method

used was statistical analysis. The participants ranged from ages 23 and 64 years old, generally healthy and unmedicated. The tools utilized in this study include the ketogenic diet, magnetic resonance imaging (MRI), positron emission tomography (PET) imaging, and plasma metabolites. Before and after implementing a ketogenic diet, the data did not significantly change regarding brain energy before and after implementing a ketogenic diet. The p-value was <0.0001 . The author concluded that short-term ketoacidosis could meet the brain's needs. However, additional research is needed to determine metabolic changes in healthy older adults on a ketogenic diet are similar to those with Alzheimer's disease (Courchesne-Loyer et al., 2016).

Assumptions

Many utilize a ketogenic diet to achieve ketosis as a form of replacement for glucose metabolism. The brain relies on glucose to function, but it remains unclear how it uses glucose. The author has the assumption that ketones are an alternative for glucose in supplying the brain with the fuel it needs. The author employs PET imaging to determine how ketones and glucose affect brain metabolism in healthy adults (Courchesne-Loyer et al., 2016).

Deficit/Conclusion

The author's line of reasoning is admissible. This article implies that ketones can circumvent brain glucose hypometabolism in older adults. If nursing fails to accept this line of reasoning, the implications would be that older adults may be more susceptible to Alzheimer's disease due to a decline in cerebral glucose metabolism (Courchesne-Loyer et al., 2016).

A modified ketogenic gluten-free diet with MCT improves behavior in children with autism spectrum disorder

Autism spectrum disorder (ASD) is a neurodevelopmental disorder that interferes with social communication and concentration. ASD can induce anxiety, impulsivity, repetitive behaviors, and self-harm. This article examines the effects of a modified ketogenic diet on improving symptoms of autism spectrum disorder in children (Lee et al., 2018).

Key Points

The key points that the author is addressing are if adhering to a modified ketogenic, gluten-free diet with supplemental MCT (KD/GF/MCT) for three months can improve social interactions, communication, and repetitive behaviors in patients with autism. The most critical information in the article is whether changes in cellular metabolism of carbohydrates and fat composition that affect inflammatory processes and the gut microbiome can improve core features of autism. The research method used was an open-label, observer-blind clinical trial. The participants are patients diagnosed with autism and range from ages 2 and 21 years old. The tools utilized to assess the patient's baseline to the results three months later were the Autism Diagnostic Observation Schedule, 2nd edition (ADOS-2), and the Childhood Autism Rating Scale-Second Edition (CARS-2). The data did not significantly change restrictive or repetitive behavior while on the required diet. The overall total P-value is 0.020. The author concluded that the diet has potential benefits for children with autism in improving social interactions. However, additional research is needed to determine the effects of the diet on repetitive behavior in children with autism (Lee et al., 2018).

Assumptions

Diets can have a significant impact on moods and behavior. However, the long-term effects or if there will be regression after the cessation of a KD/GF/MCT diet is uncertain. The

author assumes that changing a patient with autism's diet can modify social interactions, communication, and repetitive behaviors specific to the disorder. The author employs biochemical measures to determine how a change in diet can affect social interactions and behaviors in autism patients (Lee et al., 2018).

Deficit/Conclusion

The author's line of reasoning is valid and backed by scientific evidence. This article implies that a modified KD/GF/MCT diet can safely improve social, affective impairments in children with an autism spectrum disorder. If nursing fails to accept this line of reasoning, the implications would be that more autism patients are less susceptible to epigenetic changes that have the potential for regulation with a KD/GF/MCT diet (Lee et al., 2018).

Ketosis and bipolar disorder: controlled analytic study of online reports

The ketogenic diet provides benefits for those with certain medical disorders. This article explores whether a ketogenic diet can stabilize a bipolar person's moods. The article draws parallels between the features of epilepsy and bipolar disorder and hypothesizes that following a ketogenic may have the ability to stabilize moods in bipolar disorder as it does in those with epilepsy. By utilizing free-text comments in online forums discussing the effects of dietary interventions on the moods of those with self-reported bipolar disorder, this article assessed whether it would be advantageous to investigate the hypothesis further (Campbell & Campbell, 2019).

Key Points

The author addresses the main point of whether there is a connection between a specific diet and regulating moods in patients diagnosed with bipolar disorder. The most critical information in the article is if a ketogenic diet can have a lasting effect on stabilizing the moods of those with bipolar disorder. The research method was an observational analytic study of free-text comments in online forums discussing a specific diet's effect on a bipolar patient's mood and its ability to stabilize it. The comments of people with bipolar disorder were essential in conducting this study. The tools utilized were text mining techniques, ten websites dedicated to bipolar disorder with a large following, and two control groups (omega-3 enriched and vegetarian) to limit bias. The combined P-value from the data was 0.002. The author concluded that the data shows a significant number of reports claiming an extensive period of remission in symptoms while on the ketogenic diet. However, further investigation of the long-term effects of a ketogenic diet on those with bipolar disorder is needed to determine consistent periods of remission in symptoms (Campbell & Campbell, 2019).

Assumptions

A ketogenic diet can improve mood stabilization, and further investigation to regulate bipolar disorder is needed. The author has the assumption that achieving ketosis can have beneficial effects on self-reported mood stabilization. The author employs text mining techniques to retrieve posts from forums that simultaneously discuss the ketogenic diet and bipolar disorder (Campbell & Campbell, 2019).

Deficit/Conclusion

The author's line of reasoning is debatable. The information provided is subjective and based on self-reports. However, using two control groups helped reduce bias, and a patient's first-hand experience is valuable to finding new health outcomes. The article implies that a

ketogenic diet can provide favorable results regarding the stabilization of moods. If nursing fails to accept this line of reasoning, the implications would not be conducive to improving mood stabilization in those with bipolar disorder (Campbell & Campbell, 2019).

Conclusion

The conclusion of the three research topics examining the benefits of nutritional therapy on various medical diagnoses is that a ketogenic diet significantly improves health outcomes of those with Alzheimer's, autism spectrum disorder, and bipolar disorder. The information from the articles can improve the nursing practice by allowing nurses to offer safe alternatives to medication for patients who would like to start with a more natural approach to their diagnosis. All three articles utilize evidence-based practice to integrate science with patients' preferences and values, improving quality efforts in the healthcare setting in managing a patient's symptoms. The research findings can improve healthcare as a whole by exploring alternatives to medication and utilizing nutritional therapy to improve patients' lives and reduce adverse symptoms that they may be experiencing (Baute et al., 2018).

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