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Investigating the Ketogenic Diet As Treatment for Primary Aggressive Brain Cancer: Challenges and Lessons Learned.

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Survival of glioblastoma multiforme (GBM) with the current recommended treatment is poor. Reported median survivals are approximately 8-15 months. Based on recent publications from animal models, combining cancer drugs, radiation, and diet-metabolic treatments may be a new route to better survivals. To investigate this possibility, we have begun a clinical trial that has enrolled 15 subjects using a ketogenic diet (KD) as an addition to current standard treatments that include surgery, radiation therapy, and chemotherapy. Of the 15 enrolled, 10 completed the protocol. This perspective describes the challenges and lessons learned during this clinical trial and discusses the critical elements that are essential for investigating treatment with a KD. We also reviewed and compared various types of KDs. We believe that the diet selected should be standardized within individual clinical trials, and more importantly, the patients' blood should be monitored for glucose and ketones twice daily so that the supervising dietitian can work with the patient and their caregivers to make appropriate changes in the diet. Compliance with the diet is best in highly motivated patients who have excellent home support from a family member or a friend who can help to overcome administrative, physical, and cognition deficiencies associated with the disease. Treatment of GBM using a KD represents a reasonable investigative approach. This perspective summarizes the challenges and lessons learned implementing and continuing KD therapy while the patients are concurrently being treated with radiation and chemotherapy.

KEYWORDS: blood ketones; glioblastoma; ketogenic diet; lessons learned; pilot study

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