

The ketogenic diet is an effective adjuvant to radiation therapy for the treatment of malignant glioma.

PLoS One; May 2012

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Objective - The ketogenic diet has been used with success for refractory epilepsy (when anti-epileptic drugs are unable to effectively stop seizures). Administration of the ketogenic diet leads to formation of ketone bodies – normal brains cells can use ketone bodies as an energy source but tumor cells cannot. Hence, in addition to the role of the ketogenic diet in epilepsy, there may be a possible role of the diet in shrinking the tumor as well. The authors of a recent [study](#) asked whether the ketogenic diet is beneficial in one kind of brain tumor called glioma in mice. In this model, glioma cells were implanted into the brains of mice (mice were anesthetized and care was taken so that the mice do not feel undue pain). [KetoCal](#) – a commercially available ketogenic diet for pediatric epilepsy patients was used, and was compared to the standard diet. If the ketogenic diet is found to be useful in mice, it is expected that it will be tested in a subset of brain tumor patients. But it is unlikely that it will be tested without an adjuvant therapy. Hence, in this study, the authors observed the efficacy of KetoCal in glioma in mice along with radiation.

Results - Mice with glioma that were administered the ketogenic diet had a higher survival rate than those that were on the standard diet. Ketogenic diet along with radiation had a highly beneficial effect on survival and tumor growth. Indeed, Ketocal along with radiation led to a marked decrease in tumor volume; this effect was more pronounced than radiation alone.

Interpretation - The ketogenic diet has been used with success in refractory epilepsy, but its use in brain tumors is just being investigated. This study showed that the ketogenic diet along with radiation was beneficial in shrinking tumor volume in mice with glioma and in increasing survival.

Short summary for scientists - The usefulness of the ketogenic diet has been shown in refractory epilepsy, but its use in brain tumors is still being investigated. This [study](#) showed that in mice with glioma, the ketogenic diet along with radiation was effective in shrinking tumor volume. The effect of the ketogenic diet along with radiation on seizure frequency would be interesting to observe.

Link to the paper –Free access - yes