Ketogenic Diet Might Be Helpful for VA's Cancer Patients

By Annette M. Boyle

CHICAGO—Researchers at the Pittsburgh VAMC reported a five-patient case series which indicates that a ketogenic diet may help patients with solid tumor cancers. They presented the cases at the 2019 American Society of Clinical Oncology Annual Meeting held in Chicago.[1]

Previous research found that the mitochondrial dysfunction that characterized cancer cells also predisposes them to prefer glucose.

"Ketogenic diets fuel normal cells while starving cancer," the researchers said, leading them to explore the impact of such diets on outcomes for cancer patients.

The five patients studied all had advanced solid tumor cancers and continued with current standard of care chemotherapy. They adopted a modified ketogenic diet that restricted daily carbohydrate intake to 20 grams to 40 grams, with no sweets or starches permitted.

The first patient, a 70-year-old male, had inoperable Stage IIIA poorly differentiated squamous cell lung cancer as well as non-Hodgkin lymphoma, for which he initially received radiation and paclitaxel plus carboplatin chemotherapy. The lung cancer relapsed after five months as a metastasis in the neck, at which point the patient received chemoradiation and started the ketogenic diet. At 46 months, his blood counts were normal and his scans were clear.

The second case involved a 42-year-old male, weighing 417 pounds. The patient had diabetes and Stage IV colon cancer that had spread to the lungs and liver. He progressed on 5FU/bevacizumab/oxaliplatin, irinotecan, tipiracil/trifluridine, and regorafenib. Ultimately, he responded to 5FU/irinotecan rechallenge combined with liver chemoembolization and the ketogenic diet. He lost 64 pounds and experienced mild ketosis but continued to have stable disease at 6.5 years.

The third patient had Stage III melanoma. The 42-year-old male proved intolerant of vemurafenib, the treatment of choice for his BRAF v600E mutated type of melanoma. He had surgical resection of bulky axillary nodes and followed the ketogenic diet for three years. At seven years and nine months, he remained in remission.

In case four, the patient had medically inoperable liver cancer at age 57. He achieved normal alpha-fetoprotein values and had clear scans after five months of treatment with sorafenib, but his AFP later rose to 690 ng/ml. He rejected advice to switch therapies and instead continued with sorafenib but adopted the ketogenic diet, which pushed his

AFP down to 445 ng/ml after five months. At that point, he interrupted treatment and abandoned the diet for three months. His AFP values rebounded to 1017 ng/ml and he returned to sorafenib plus the diet. After more than seven years, he continued to have negative scans, though AFB had reached 1520 ng/ml.

Patient five had a diagnosis of aggressive digital papillary skin adenocarcinoma with multiple organ metastases. The 49-year-old patient experienced side effects with multiple chemotherapies (paclitaxel/bevacizumab/carboplatin, sorafenib, gemcitabine, oxaliplatin/5FU, cyclophosphamide). While on the ketogenic diet, he experienced stable disease despite frequent therapy changes. At 34 months, he had discontinued the diet and had growth of existing tumors as well as new brain lesions. The brain metastases were resected, and he switched to atezolizumab and was still alive at 36 months.

Based on these results, the researchers concluded that “ketogenic diets in human solid tumors seem well tolerated and may improve response and survival after standard therapy.”

1. Tan JL, Carrick J, Passero VA, Shields J, Liman AD, Rai H, Harrold L. Modified ketogenic diet in solid tumors: A Veteran Affairs Pittsburgh Healthcare System case series. *J Clin Oncol* 37, 2019 (suppl; abstr e14217).