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A Clinical Trial Involving a Dietary Strategy for Men with Prostate Cancer Undergoing Active Surveillance

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Each year more than 180,000 men are diagnosed with prostate cancer.[1] Current treatment options for prostate cancer include surgery, radiation, high-intensity focused ultrasound, and cryotherapy.[2,3] Although typically successful, these strategies carry significant risks for incontinence, erectile dysfunction, and local tissue injury. As a result, for a select subgroup of men with more indolent forms of prostate cancer, active surveillance has become the preferred management strategy. This approach entails periodic laboratory testing, with prostate-specific antigen (PSA) checks at intervals of 3–6 months, and repeat prostate biopsies every 1–2 years or earlier if indicated by PSA elevations.[4] Treatment interventions are withheld unless re-biopsy results indicate progression to more aggressive disease.

Although surveillance offers a reprieve from cancer treatment and its potential negative sequelae, this benefit appears temporary for many men. Available data indicate that 36%–55% of men on active surveillance will require treatment for disease progression within 10 years.[5,6] One notable risk factor for disease progression during surveillance is overweight status. In a study of 565 prostate cancer patients on surveillance, a 50% increased risk of pathologic progression was associated with every 5 kg/m^2 increase in body mass index (BMI) over 25.[7] These results support additional evidence linking weight gain with an increased risk of prostate cancer recurrence after surgery.[8]

At the University of Maryland, we have attained grant support from the Mid-Atlantic Nutrition and Obesity Research Center to conduct a prospective clinical trial examining a ketogenic diet intervention for overweight men on active surveillance. The goal of the research is to gather preliminary data evaluating the effects of a promising dietary strategy to delay cancer progression in overweight prostate cancer patients undergoing active surveillance. We hypothesize that a ketogenic diet, which requires a specific ratio of macronutrients, may reduce BMI and favorably alter the prostate tumor microenvironment. To evaluate this, we are placing men on an 8-week ketogenic diet that will be scheduled to immediately precede one of the patient's regularly scheduled active surveillance prostate biopsies. Some of the biopsied tissue will be analyzed for DNA and metobolomic expression to assess the impact of the diet on prostate microenvironment.

The diet intervention will be handled by trained dietitians from the Center for Integrative Medicine at the University of Maryland School of Medicine in collaboration with the Department of Radiation Oncology and Division of Urology. We hope to accrue a dozen patients on this trial, which will be open to non-diabetic men on active surveillance with BMIs over 25.

References

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