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Antioxidant use appears safe during radiation therapy for prostate cancer

By Cheryl Guttman Krader

Supplements do not interfere with RT's efficacy, initial study findings suggest



Dhiren Shah, MD

Chicago—Use of nutritional supplements providing vitamins and higher doses of antioxidants does not appear to interfere with the efficacy of radiation therapy for prostate cancer, according to a study presented at the American Society for Radiation Oncology annual meeting here.

In the prospective trial, 53 men with prostate cancer scheduled to undergo radiation therapy for curative intent were enrolled in a phase I, double-blind study and randomized into three treatment groups to receive placebo; a supplement containing dietary reference intake (DRI) doses of vitamins and minerals (DRI formulation, similar to Centrum Silver); or an orthomolecular preparation containing higher doses of six antioxidants in addition to the standard reference intake doses of vitamins and minerals. Study treatment was initiated 1 week prior to the beginning of radiotherapy and continued for 3 months after its conclusion.

'No significant differences' in outcomes

Response to radiation therapy has been followed with PSA monitoring. Between 3 months and 2 years, there were no significant differences among the three groups overall or when the men were stratified based on use of hormone therapy.

In addition, the study included a comprehensive array of laboratory and questionnaire assessments to investigate possible effects of treatment on nutritional status, oxidative damage and stress, immune function, adverse effects of radiation therapy, prostate cancer-related symptoms, and physical and mental quality of life. Nutritional status improved in both the DRI and orthomolecular supplement groups, but was unchanged in the controls. Otherwise, there were no significant differences between groups in any of the outcome measures.



Dr. Brown

"Growing interest among cancer patients in the use of antioxidants has created some concern about the possibility of detrimental effects on treatment response, and in particular whether it might somehow protect the cancer cells from radiation therapy," said Dhiren Shah, MD, a radiation oncologist at Cancer Care of Western New York, Buffalo, one of five radiation oncology centers participating in the study. "Our study suggests supplements containing self-care dosages of vitamins, minerals, and antioxidants can be taken safely by prostate cancer patients during radiotherapy. However, longer follow-up in a larger patient population is needed to confirm these initial findings."

"This is an exploratory study with a small sample and relatively short follow-up so far in terms of assessing the effectiveness of radiation therapy," added principal investigator Jean K. Brown, RN, PhD, dean and professor in nursing, nutrition, and rehabilitation science at the University at Buffalo School of Nursing. "However, it has a rigorous design, and so the results provide some early evidence for answering the question about the appropriateness of antioxidant use during radiation therapy.

"Follow-up is planned to 5 years and we hope to conduct a larger trial. However, based on our findings so far, it does not appear that cancer patients need be counseled to avoid taking antioxidants during radiation therapy."

The patients enrolled in the study received external beam radiation with or without brachytherapy using similar treatment protocols across all investigational sites. The majority of men had stage II prostate cancer (83%), Gleason scores 7 to 9 (54%), and received androgen deprivation therapy (56%). Differences between groups in baseline characteristics were adjusted for in the statistical analyses of outcomes.

All but one enrolled patient completed the study and excellent adherence with study medication was verified for all participants via capsule counts and measurement of serum vitamin levels.

'Real-world' antioxidant use studied

Discussing the rationale for conducting the study, Dr. Brown explained that while dietary supplements appear to be widely used by cancer patients as a self-care strategy, this practice is very controversial among oncologists because of the lack of studies investigating its potential risks and benefits. Previous research on this topic is comprised of animal studies and clinical trials investigating very high doses of selected antioxidants as adjuvant treatment to radiation therapy.

"Based on careful literature review and ongoing monitoring, we believe ours is the first study examining a more 'real-world' use of antioxidants," Dr. Brown noted.

"As our study is the first of its kind and because the NCI funding we received was for an exploratory-level trial, we believed it was critical to look at a full spectrum of outcomes ranging from a cellular level to a holistic perspective."

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Dhiren Shah, MD
Dr. Brown



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