Re: Should Supplemental Antioxidant Administration Be Avoided During Chemotherapy and Radiation Therapy?

The controversy over antioxidant use during radiation therapy and chemotherapy has been raised again in a commentary by Lawenda et al. (1). We question the conclusion summarized in their abstract as well as their presentation of outcomes from studies by Bairati et al. (2,3) and Meyer et al. (4).

Bairati et al. (2,3) reported increased recurrence rates and lower survival in head and neck cancer patients taking α-tocopherol and β-carotene supplements. Patients receiving supplements had statistically significantly fewer severe acute side effects than those not receiving supplements (2). However, a later publication (4) demonstrated that the detrimental effects of synthetic β-carotene were observed only in the subgroup of patients...
who had smoked during the course of their radiation treatment, whereas those who did not smoke during treatment showed no detrimental effects, even if they smoked before the initiation or after the completion of treatment. This important reinterpretation of the earlier results appears to have been disregarded by Lawenda et al. (1), who emphasized only the lower survival of the entire group receiving supplements. According to Lawenda et al. (1), other studies supporting their conclusion that patients should avoid antioxidants during radiotherapy have “substantial limitations.”

Our evaluation of these studies is that it is simply not possible to make a conclusive statement regarding antioxidants and radiation at this time, except for smokers. Patients inquiring about using supplements to control radiation side effects should be informed that they must abstain from smoking tobacco if they take antioxidants during radiotherapy. We recommend that patients receive individual counseling regarding the use of antioxidants for radiation side effects that are anticipated or experienced. Simply ruling out antioxidant use for all patients is an inadequate response to the state of the literature and given the potential control of side effects observed by Bairati et al. (2,3). The issue is less one of “doing no harm” than of weighing risks and benefits of radiotherapy.

Lawenda et al. (1) also noted that antioxidants may actually enhance the effects of chemotherapy and diminish its toxicity, noting that “no decrements in tumor response rates or survival rates were observed,” although “none of those studies were powered to evaluate these endpoints.” However, in the abstract, they conclude that supplemental antioxidants should be discouraged during both chemotherapy and radiation. Because their findings on chemotherapy were not clearly differentiated from those on radiation, the mass media inaccurately perpetuated the abstract’s conclusion by announcing that “Cancer patients should steer clear of antioxidants” and by specifying that “cancer patients undergoing radiation or chemotherapy avoid supplements with high levels of antioxidants (5).”

Our reviews (6,7) on the subject of antioxidants and chemotherapy found no evidence of lower survival or response, and substantial suggestion of reduced side effects for patients who used supplemental antioxidants. We agree with Lawenda et al. that antioxidants may be beneficial in chemotherapy, and advocate further research with adequately powered studies in both chemotherapy and radiation. Patients who are unable to complete their full chemotherapy regimens have been observed to have higher mortality than those who are able to complete treatment. Thus, it would be a real disservice to patients to disregard the potential benefits of antioxidants in improving patients’ ability to tolerate treatments. Improving treatment tolerance will increase the chance of a patient completing a full chemotherapy regimen and, as a result, the odds of a favorable impact on a patient’s outcome.

Notes

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DOI: 10.1093/jnci/djn446

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References


