## Vitamin E and chemotherapy-induced neuropathy

In a randomized controlled trial, Argyriou et al. reported that the incidence of neuropathy in cancer patients assigned to receive vitamin E was significantly lower than it was in the control patients.

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## Neuroprotective effect of vitamin E supplementation

Commentary by Santosh Kesari, MD, PhD, and Patrick Y. Wen, MD

Chemotherapy-induced neuropathy is a dose-limiting toxicity for many important chemotherapeutic agents, including cisplatin and taxanes such as paclitaxel (Taxol) and docetaxel (Taxotere). Cisplatin produces a sensory neuronopathy with preferential loss of large fiber sensation, while the taxanes produce a symmetric axonal sensorimotor polyneuropathy.[1] Over the past decade, several agents have been tested in preventing neuropathy with limited success, including amifostine, Org 2766, and neurotrophins (including nerve growth factor). Vitamin E is a well-known antioxidant and deficiency results in a similar neuropathy.[2] Vitamin E levels can be decreased in patients receiving cisplatin chemotherapy and observational data suggested that supplementation with vitamin E decreases the incidence and severity of peripheral neuropathy.[3]

The Argyriou et al. study is a randomized, blinded, placebo-controlled pilot study of oral vitamin E supplementation for prophylaxis of chemotherapy-induced (cisplatin, paclitaxel, or combination) neuropathy. Thirty-one patients received six courses of chemotherapy and were randomly assigned to receive vitamin E (300 mg bid) or placebo. A modified peripheral neuropathy score was performed during and 3 months after chemotherapy. The incidence of neurotoxicity was strikingly decreased in the group receiving supplemental vitamin E (25% vs 73%), with a relative risk of developing neurotoxicity of 0.34 (CI 0.14 to 0.84). There were no adverse effects related to vitamin E supplementation. While there data are compelling and the randomization adequate, the number of patients was small and the multiple tumor types and chemotherapy regimens make it difficult to generalize these results. However, the data are persuasive enough that a larger double blind, placebo-controlled, randomized trial is indeed warranted, and if positive, will have an impact on the quality of life for many cancer patients.

### References

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