Please note: Dr. Tatonetti is a compensated advisor to Advera Health, Inc. Mr. Lorberbaum has reported that he has no relationships relevant to the contents of this paper to disclose.

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Vitamin E May Protect Against Contrast-Induced Acute Kidney Injury

McCullough et al. (1) reviewed the pathophysiology and treatment options for contrast-induced acute kidney injury (CI-AKI). They stated that no effective adjunctive pharmaceutical had been demonstrated that either prevented or treated CI-AKI. However, they also suggested that of the agents being investigated, statins were the most promising. We would like to point out that strong evidence has also emerged regarding the effect of vitamin E against CI-AKI, which was not mentioned in their review.

Three randomized placebo-controlled trials found that vitamin E significantly prevented CI-AKI, with point estimates ranging from 52% to 75% for the decrease in the incidence of CI-AKI (2–4). All participants had chronic kidney disease and had been subjected to coronary catheterization or angiography. The latest trial reported CI-AKI cases in 14.1% of the placebo group, but in only 6.7% of the vitamin E group, which corresponded to 7.4% of participants benefitting from the vitamin, with a number needed to treat (NNT) of 13.5 (4). The 2 earlier studies found NNTs of 5.8 (2) and 10.6 (3). In each study, approximately one-half of the patients were on statin therapy; therefore, the effects of vitamin E might have also been beneficial in addition to statins.

Two of the vitamin E trials were carried out in Thailand (2,3), and 1 was carried out in Iran (4). Thus, it is not known whether the findings can be directly generalized to Western countries. Even if the positive findings might only be applicable to less developed countries, the findings are important for the populations of such countries.

Vitamin E is an essential nutrient, and therefore, its potential benefit in preventing CI-AKI is interesting. Furthermore, vitamins E and C may interact. Vitamin E decreased total mortality in male smokers aged older than 65 years if their dietary vitamin C intake level was high, but not if their vitamin C intake was low (5). Thus, a large factorial trial seems warranted to examine the effect of statins and vitamins E and C, and their combinations to discover the optimal protocol to prevent CI-AKI.

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http://dx.doi.org/10.1016/j.jacc.2016.11.091

Please note: Both authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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REPLY: Vitamin E May Protect Against Contrast-Induced Acute Kidney Injury

We appreciate the comments from Drs. Hemilä and Rezaei concerning small randomized trials of short-term vitamin E for the prevention of contrast-induced acute kidney injury (CI-AKI). In the trial