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Issue: Unselective use of high-dose Vitamin E supplement does more harm than good

Publication 1: Arteriosclerosis Thrombosis and Vascular Biology (ATVB) 2009; 29: 1304-1309

Authors: Yedidya Dotan, Ilya Pinchuk, Dov Lichtenberg, Moshe Leshno

Publication Date: September 2009

Publication 2: BioFactors 2009; 35(6): 469- 473

Authors: Yedidia Dotan, Dov Lichtenberg, Ilya Pinchuk

Publication Date: October 2009

Study conclusions:

The publication is not an original clinical study but a re-analysis of data derived from published clinical trials using a statistical technique called Markov analysis combined with Monte-Carlo simulations. The objective was to re-assess the outcome of non-discriminatory supplementation of vitamin E with regards to cardiovascular-related events and mortality. The main finding was that unselective supplementation of high doses of Vitamin E results in loss of quality-adjusted life years (QALY), the average QALY of vitamin E-supplemented group was 0.30 QALY less than that of untreated group. Although the authors do not support indiscriminate supplementation of high dose vitamin E to the general public, they stated that there are populations who can benefit from vitamin E.

Responses:

1. The publication above is reported out of proportion. The media did not report another meta-analysis study which concludes that Vitamin E intake is unlikely to affect mortality¹.
2. Readers should note that it does not mean that people who take Vitamin E will have shorter life span. The conclusion refers to the reduction of quality-adjusted longevity for vitamin E group.
3. In response to the above publication, Associate professor Harri Hemila² wrote in his electronic letter ".....Nevertheless, they noted that this does not mean that all individuals are harmed by vitamin E; in fact they believed that many individuals may even benefit from vitamin E supplements."

4. It is noted that the authors recognised that supplementation of Vitamin E is beneficial to many people, such as diabetic people, dialysis patients and middle age smokers³.
5. This is not an original observational or intervention clinical study. This is an analysis report on data derived from pooled published clinical studies instead of raw data from well conducted observational study with long follow-up period.
6. The conclusion that supplementation of Vitamin E reduced the QALY by 0.3 QALY is not confirmatory because the statistical methods used rely on various assumptions that disregard differences between the clinical studies. This includes different health status of study populations, different isomers of Vitamin E (tocopherol) or racemic mixture used, dosages of Vitamin E, duration of intake, follow-up period. In another meta-analysis study using Bayesian meta-analysis method, it is shown that Vitamin E intake is unlikely to affect mortality¹.
7. The authors made a valid point about being cautious in the use of high dose Vitamin E among general public and the need to develop criteria for responder and non-responder to Vitamin E supplementation.
8. From a balanced point of view, intake of Vitamin E at moderate dose level is matching to a healthy diet and lifestyle.

4 February 2010

References

1. Berry D, Wathen JK, Newell M. Bayesian model averaging in meta-analysis: vitamin E supplementation and mortality. Clin Trials. 2009; 6(1): 28- 241.
2. Harri Hemila. Electronic letter "Vitamin E may increase and decrease mortality". 15 October 2009. <http://atvb.ahajournals.org/cgi/eletters/29/9/1304>
3. Dov Lichtenberg. Electronic letter "Re: Vitamin E may increase and decrease mortality". 2 Nov 2009. <http://atvb.ahajournals.org/cgi/eletters/29/9/1304>