

*LETTER TO THE EDITOR*

HYPERVITAMINOSIS E

Sir,

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Use of vitamin E has increased considerably in last decade in view of the increased awareness as regards its antioxidant and antiatherogenic potentialities. The various antioxidant and multi-vitamin preparations containing vitamin E at a dose higher than 50 mg per day have been increasing in number relentlessly in the pharmaceutical market. The daily requirement of vitamin E in healthy adults has not been well defined but many authors and workers have suggested that the daily requirement varies from 3 mg to 25 mg per day but not exceeding 50 mg at any cost. But in certain diseased states like, fibrocystic disease of the breast, fat malabsorption syndrome causing vitamin E deficiency, Cystic fibrosis abetalipoproteinaemia, the daily dose is very high upto a maximum of 150-200 mg per kg of body weight per day. However, we came across three young adults, two females and one male, in the age range of 32 to 47 yrs, consuming vitamin E of a daily dose of 400-600 mg complaining of certain side effects related to vitamin E overdosage which improved after stopping vitamin E in a period of one to two weeks time. However, in the third, the side effects improved only after stopping the oral anticoagulant, other illnesses simulating those produced because of hypervitaminosis E could be excluded by history taking, clinical examinations and appropriate investigations.

Vitamin E being a fat-soluble vitamin, administration of a dose higher than the daily requirement in healthy persons result in accumulation inside the body. Hence certain side effects thus produced due to accumulation of Vitamin E are known as hypervitaminosis E. The use of Vitamin E has increased tremendously in last decade because of increased awareness as regards to its antioxidant and antiatherogenic effects. The number of pharmaceutical companies manufacturing vitamin E has increased considerably. The strength ranging form 100 to 600 mg. It is natural that healthy adults taking vitamin E daily at a dose of 100 mg or more for a long time, preferably for more than 1 yr. are likely to get various side effects called hypervitaminosis E. All practicing physicians must be conscious about the syndrome of hypervitaminosis E. Few cases of cerebral hemorrhage have been reported because of prolonged intake of vitamin E at a dose of 50 mg per day. The number and severity of the side effects are directly proportional to the dose and duration of intake of vitamin E.

The side effects can be divided into cardiovascular and non-cardiovascular. They can occur as such or in certain situations like in premature infants and those with intake of oral anticoagulants (1). The probable mechanism of increased incidence

of bleeding tendency is because of the fact that vitamin E at a high dose antagonizes vitamin K and prolongs prothrombin time. In premature infants the side effects are because of impaired capacity to metabolize vitamin E. They receive a very high dose of vitamin E because of cystic fibrosis (2). Nitric oxide is a powerful free radical, there it acts upon nitric oxide because of its antioxidant property resulting in a substantial decrease in the level of nitric oxide. Thereby producing vasoconstriction of cerebral and systemic vessels in hypervitaminosis E (3).

The other cardiovascular side effects are hypertension, aggravation of angina, acceleration of atherosclerosis and restenosis process; and reduction of cerebral blood flow leading to stroke.

The non-cardiovascular side effects pertain to gastrointestinal; haematological with increased bleeding tendency and decreased phagocyte property of leukocytes, neuromuscular, and the endocrine disturbances (4). Besides there are dermatological side effects like ecchymosis and chapping of the lips, renal complications like creatinuria and creatinaemia and the gynecological side effects of irregular vaginal bleeding, gynaecomastia, breast cancer and disturbances in reproduction (5). There is importance because of failure of penile erection.

Two healthy females SM 32 yrs and AP 47 yrs were using vitamin E at a dose of 600 mg per day for a period of more than one year due to infertility problem thinking that vitamin E was harmless even on prolonged use. One presented to us with

complaints of unresponsive urticaria, the other with fainting attacks and intermittent headache. The cardiovascular and neurological examinations did not reveal any abnormality. Two to three weeks after stopping vitamin E and giving symptomatic treatment both were free from such side effects. The third case CMP, 39 yrs male was using Vitamin E 600 mg per day for the problem of nocturnal cramps in calf muscles for a period of more than 3 months. He happened to be a rheumatic heart disease patient with mitral valve replacement using oral anticoagulant nicoumalone 4 mg. daily. He complained of severe bleeding tendency that did not cease after stopping nicoumalone. After getting the history of vitamin E use, he dramatically improved from bleeding disorder after vitamin E was stopped in few days time.

Hypervitaminosis E is a very rare phenomenon. In view of increasing use of vitamin E in recent days physicians should be aware of the syndrome of hypervitaminosis E. It has been established that the daily supplementation of vitamin E should be maximum 25 mg per day as per a report in Meyler's side effects of drugs. The facilities for estimation of serum vitamin E in most equipped centres of our country are lacking. It is therefore, prudent to stick to a low dose regimen in otherwise healthy adults.

It is worth remembering that the daily dose of vitamin E in healthy adults is 25 to 50 mg. The syndrome of hypervitaminosis E has to be kept in mind in those using vitamin E at a very high dose in diseased states as described.

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REFERENCES

1. Corrigan JJ Jr. Effects of vitamin E in warfarin induced vit. K. deficiency. *Ann NY Acad Sci* 1992; 82 : 361.
2. Lemmons JA et al. Vitamin E, How much is too much. *Pediatrics* 1995; 76 : 625.
3. Lorch V et al. Unusual syndrome with fatalities among premature infants, association with a new I.V. vitamin E product. *Morb Week Report* 1994; 33 : 198.
4. *Harrisons Principle of internal medicine*, McGraw Hill, New York, 14th edn. 1998, 442-444.
5. Toxic effects of vitamin overdosage. *Med Lett Drugs Ther* 1984; 26 : 73.