

TOCOTRIENOLS AND BREAST CANCER-THE OUTCOME FROM A CLINICAL TRIAL

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ABSTRACT

Cancer in the breast is the main site of new cancers in women and has become the second leading cause of cancer mortality for women. Observational studies that have assessed exposure to vitamin E by plasma or adipose tissue concentrations of alpha-tocopherol have failed to provide consistent support for the idea that alpha-tocopherol provides any protection against breast cancer. In addition, evidence from studies in experimental animals suggest that alpha-tocopherol supplementation alone has little effect on mammary tumors. In contrast, studies in breast cancer cells and mice models indicate that gamma-, and delta-tocotrienol, have potent antiproliferative and proapoptotic effects that would be expected to reduce the risk of breast cancer. A recent study looked at tocopherol and tocotrienol concentrations in malignant and benign adipose tissue, in a Malaysian population consuming predominantly a palm oil diet. The results revealed that there was a significant difference ($p=0.006$) in the total tocotrienol levels between malignant ($13.7 \pm 6.0 \mu\text{g/g}$) and benign ($20 \pm 6.0 \mu\text{g/g}$) adipose tissue samples. However, no significant differences were seen in the total tocopherol levels ($p=0.420$) in the two groups suggesting a protective role of tocotrienols. Thus, it seems plausible that the modest protection from breast cancer associated with dietary vitamin E may be due to the effects of the other tocopherols and the tocotrienols in the diet. To further test this hypotheses a clinical trial was conducted. 240 breast cancer patients were randomly assigned to 2 groups. Group A received tamoxifen plus tocotrienols whilst Group B received tamoxifen plus placebo for 5 years. Patients were aged between 40-60 years at either Stage 1 or II of the disease and were Estrogen Receptor (ER) positive. The outcome of the clinical trial which has just been concluded will be presented.

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