

ORIGINAL RESEARCH COMMUNICATION

Erythrocyte fatty acids and breast cancer risk: a case-control study in Shanghai, China^{1,2,3}

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Background: The role of individual fatty acids in the development and progression of breast cancer is unclear. Although in vitro and animal experiments have supported an inverse association between intake of long chain n-3 fatty acids [primarily eicosapentaenoic acid (EPA) and docosahexaenoic acid] and breast cancer risk, findings from population studies are inconsistent. Recent studies have also shown associations between the ratio of saturated to monounsaturated fatty acids (SI) and breast cancer risk. The SI reflects the activity of several genes involved in lipid metabolism, including fatty acid synthase and steroyl coenzyme-A desaturase, that have been shown to be overexpressed in breast cancer.

Objective: The purpose of this analysis was to determine the association between erythrocyte fatty acid concentrations and breast cancer risk among women participating in a randomized trial of breast self-examination in Shanghai, China.

Design: We conducted a case-control study. Erythrocyte fatty acid concentrations were determined in specimens from 322 women with histologically confirmed breast cancer and 1030 frequency age-matched control women.

Results: We report a significant direct association among palmitic, γ -linolenic, palmitoleic, and vaccenic acids and risk of breast cancer. Total n-3 fatty acids, EPA, and the SI for palmitic to palmitoleic acid were associated with significantly lower risk of breast cancer.

Conclusion: Our results support a protective effect of n-3 fatty acids on breast cancer risk and provide additional evidence for the importance of evaluating the ratio of fatty acids when evaluating diet and breast cancer risk.

Key Words: Case-control study • fatty acids • breast cancer

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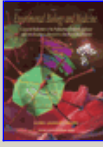


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