Abstract

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Plasma Folate Concentrations Are Positively Associated with Risk of Estrogen Receptor {beta} Negative Breast Cancer in a Swedish Nested Case Control Study.

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OBJECTIVE: Folate's role in breast cancer development is controversial. Not only estrogen receptor (ER) alpha status, but also ERbeta status of tumors may have confounded results from previous epidemiological studies. We aimed to examine associations between plasma folate concentration and postmenopausal breast cancer defined by ER status.

METHODS: This nested case-control study, within the Malmö diet and cancer cohort, included 204 incident breast cancer cases with information on ERalpha and ERbeta status determined by immunochemistry on tissue micro-array sections. Plasma folate concentration was analyzed for the cases and 408 controls (matched on age and blood sample date). Odds ratios (OR) for ER-defined breast cancers in tertiles of plasma folate concentration were calculated with unconditional logistic regression. All tests were 2-sided.

RESULTS: Women in the third tertile of plasma folate concentration (gt 12 nmol/L) had higher incidence of ERbeta- breast cancer than women in the first tertile (OR: 2.67; 95% CI: 1.44-4.92; P-trend = 0.001). We did not observe significant associations between plasma folate concentration and other breast cancer subgroups defined by ER status. We observed a difference between risks for ERbeta + and ERbeta- cancer (P-heterogeneity = 0.003).

CONCLUSIONS: Our findings, which indicate a positive association between plasma folate and ERbeta- breast cancer, highlight the importance of taking ERbeta status into consideration in studies of folate and breast cancer. The study contributes knowledge concerning folate's multifaceted role in cancer development. If replicated in other populations, the observations may have implications for public health, particularly regarding folic acid fortification.

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