Vitamin C intake from diary recordings and risk of breast cancer in the UK dietary cohort consortium


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Introduction Vitamin C intake has been inversely associated with breast cancer risk in case-control studies, but not in meta-analyses of cohort studies using Food Frequency Questionnaires. No study has assessed this relationship prospectively using food diaries which may more accurately measure intake.

Methods Estimated dietary vitamin C intake was derived from 4 to 7 day food diaries pooled from five prospective studies in the UK Dietary Cohort Consortium. This nested case-control study of 851 incident breast cancer cases and 2727 matched controls examined breast cancer risk in relation to dietary vitamin C intake using conditional logistic regression adjusting for relevant covariates. Additionally, total vitamin C intake from supplements and diet was analysed in the three largest cohorts.

Results No evidence of an association was observed between breast cancer risk and dietary (OR=1.00 per 60 mg/d, 95% CI 0.91 to 1.09, P_trend=1.0) or total vitamin C intake (OR=1.01 per 60 mg/d, 95% CI 1.00 to 1.03, P_trend=0.1) in analyses using continuous estimates or by fifths of intake. Additionally, there was no association for post-menopausal women.

Conclusions This pooled analysis of individual UK women found no evidence of associations between breast cancer incidence and dietary or total vitamin C intake derived uniquely from detailed diary recordings.

Use of supplements containing vitamin C and breast cancer risk in the UK women’s cohort study

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Introduction Vitamin C supplementation is common in UK women and high doses are often consumed, however evidence is lacking regarding their effects on breast cancer risk in UK users.

Method 11,584 middle-aged women from the UK Women’s Cohort Study were followed up for a median of 7.4 years. Associations between 239 registered incident breast cancers and vitamin C contained in supplements recorded by 4-day diaries were analysed by Cox’s regression models using four intake categories: no frequent use of supplements containing vitamin C, frequent intake up to and including EU recommended allowances (≥60 mg/d); between 60 mg and 500 mg/d; and high intake (≥500 mg/d). Adjustment was made for relevant covariates.

Results Compared to women who did not use supplements containing vitamin C, there was no evidence of significant associations between breast cancer incidence and regular vitamin C supplementation in any intake category. Additionally, no associations were found using continuous estimates (HR = 0.98 per 60 mg/d, 95% CI 0.94 to 1.02, P_trend=0.3) or in post-menopausal sub-analyses. However pre-menopausal women in the lowest intake category (≤60 mg/d) had significantly increased risks (HR=2.57, 95% CI 1.52 to 4.27) compared to non-users of vitamin C.

Conclusion There was no evidence that supplementation with vitamin C per se was associated with breast cancer incidence in UK women, even at high doses. The increased breast cancer risk found for pre-menopausal women consuming supplements containing vitamin C less than or equal to EU recommendations may be due to the effects of other ingredients in these supplements.