

A Population-Based Case-Control Study on Dietary Total Antioxidant Capacity in Relation to Breast Cancer in a Middle-Eastern Country

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Objectives: Data on the association between dietary total antioxidant capacity (dTAC) and odds of breast cancer are scarce. This is particularly relevant to developing countries where dietary intakes of antioxidants seem insufficient. This population-based case-control study was conducted to investigate the association between dietary TAC intake and odds of breast cancer among Iranian women.

Methods: In this population-based case-control study, 350 newly diagnosed cases of breast cancer were recruited and 700 age-matched control subjects were enrolled. Dietary intakes were examined by the use of a 106-item dish-based validated FFQ. Dietary total antioxidant capacity of each participant was computed by summing up dTAC from all foods and dishes using ferric reducing antioxidant potential (FRAP) method. The quintile cut-off point of energy-adjusted dTAC

was obtained in the control group. These cut-off points were used to classify all study participants into quintiles in terms of dTAC intake.

Results: After controlling for potential confounders, individuals in the highest category of dietary TAC were 22% less likely to have breast cancer compared to those in the bottom category (OR: 0.78; 95% CI: 0.47, 1.30); however, this finding was not statistically significant. Participants in the third quintile had significantly lower odds for breast cancer compared with those in the first quintile (OR: 0.57; 95% CI: 0.34–0.93). Stratified-analysis by menopausal status revealed significant association between dietary total anti-oxidant capacity and odds of breast cancer in pre-menopause women, even after adjustment for BMI (OR: 0.03; 95% CI: 0.004, 0.22). Such a significant inverse association was seen in postmenopausal women for those in the third quintile of dietary TAC compared with those in the first quintile (OR: 0.45; 95% CI: 0.26–0.78).

Conclusions: It seems that dietary total antioxidant capacity might be inversely associated with odds of breast cancer, particularly in premenopausal. Further prospective investigations are needed to confirm these findings.

Funding Sources: No funding sources.