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Is increased fish intake related with breast cancer risk – A matched case control study among women in Karachi, Pakistan?

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Abstract

Background Diet could be a major modifiable risk factor for BC prevention. The predictive or protective effects of different food items have been investigated in several epidemiologic studies and are of interest to breast cancer researchers. However, in Pakistan, there are no studies that have evaluated the impact of dietary factors on breast cancer risk.

Objective: The objective was to assess the association between different food items and breast cancer risk in a hospital-based matched case-control study in two tertiary care hospitals of Karachi, Pakistan

Methods: Between Jan 2008 and Dec 2009, 297 cases of histologically confirmed breast cancer and 584 controls matched according to $\pm$5 yrs age and hospital were interviewed. A detailed quantitative food-frequency questionnaire was used to assess the usual intake of 36 food items 1 year prior to the disease and over 90% of commonly used foods in Karachi.

Results: We estimated mean daily intake of food items among both cases and controls. Food items that are considered to be predictive (meat, fried foods, sweets) or protective (raw vegetables, fruits, green tea, nuts) were categorized into tertiles. We conducted conditional logistic regression analysis to assess the association between tertiles of intake of each food item and BC, adjusting for age at menopause, family history of breast cancer and parity. Consumption of **sweet and fatty** food item of **halwapuri** was positively associated with breast cancer risk [adjusted odds ratio (OR) comparing the highest to the lowest tertile: 1.6, 95% confidence interval (CI): 1.21-2.12]. We also observed positive and graded association between the intake of each of the following food items and BC; **fish** (OR=1.72, CI: 1.13, 2.63), **potatoes** (OR=1.74, 1.16, 2.62)and **butter** (OR=1.9; 95% CI: 1.20–3.11).Conversely we observed an **inverse** and weak association between BC and the intake of **green tea** with higher levels being protective(OR in the highest as compared to lowest tertile= 0.71, CI 0.49-1.02). **Milk dessert** (OR= 0.54;CI 0.35,0.840. No relationship was found between beef, mutton, chicken, fruits, dry fruits, and regular tea use and breast cancer risk. Similarly eggs or bread did not increase the BC risk.

Conclusion: Our study indicates that frequent consumption of sweet foods like halwapuri may be associated with an increased risk of breast cancer. These results are consistent with other studies that implicate insulin-related factors in breast carcinogenesis. Similarly, fatty foods like butter and fried potatoes were associated with increased BC risk. The unexpected association of breast cancer risk with use of fish needs further exploration in our setting. Green tea and milk desserts seem important protective factors from public health perspective.

Key words: Breast cancer, Diet, and Case control study

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