Nutritional Science-2013

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference and Exhibition on
Nutritional Science & Therapy

July 15-17, 2013 Courtyard by Marriott Philadelphia Downtown, Philadelphia, USA

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 ± + 5yrs age and hospitals 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 food item of halwa puri 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 significant 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, 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 halwa puri 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 the use of fish needs further exploration in our setting.