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Soya foods and breast cancer risk

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Introduction

Exposure to high levels of endogenous and exogenous oestrogen has been shown to increase the risk of breast cancer. It has been postulated that a high dietary intake of soya foods, which are rich in precursors of the isoflavones daidzein and genistein, might reduce breast cancer risk through interfering with the action of endogenous oestrogen.

Aims

To investigate the relationship between soya foods and breast cancer risk.

Comments

The idea that consumption of soya foods could prevent breast cancer is widespread and has been used as a possible explanation for the relatively low risk of breast cancer in Asian countries. This is the biggest prospective study of soya foods and breast cancer involving large numbers of women regularly consuming soya. It finds no association between consumption of soya foods and the risk of breast cancer.

Methods

A total of 34 759 women were recruited into a population-based prospective cohort study in Hiroshima and Nagasaki, Japan. Participants completed questionnaires requesting dietary, lifestyle and reproductive factor information in 1969-70 and/or 1979-81 and were followed through cancer and death registers for incidence of breast cancer until 1993. The relative risk of breast cancer was calculated in

relation to the consumption of 19 foods and drinks, adjusted for attained age, calendar period, city, age at the time of the bombings and radiation dose to the breast.

Results

In the cohort there were 427 cases of primary breast cancer in 488,989 person-years of observation. Breast cancer risk increased significantly with calendar period, with more than a doubling in rates from 1969-74 to 1990-94, independent of adjustment for reproductive factors and body mass index. Risk also increased significantly with increasing radiation dose to the breast, and according to traditional reproductive factors known to be associated with breast cancer. No significant association was seen between consumption of soya foods and risk of breast cancer. Specifically, the adjusted relative risk of breast cancer for tofu consumption 2-4 times per week was 0.99 (CI95 = 0.80-1.24) and for consumption 5 or more times per week was 1.07 (0.78-1.12), compared to consumption once a week or less. For miso soup the adjusted relative risks were 1.03 (0.81-1.31) for consumption 2-4 times per week and 0.87 (0.68-1.12) 5 or more times per week, compared to consumption once per week or less. These findings were similar for women across all ages and were not materially altered by adjustment for reproductive variables. Increasing dried fish consumption was associated with a significantly decreased risk of breast cancer and increasing pickled vegetable consumption was associated with a significantly increased risk of breast cancer. These associations were not prior hypotheses and may be due to chance.

Discussion

No significant relationship was seen between consumption of soya foods and breast cancer in this relatively large prospective study. Two previous prospective studies have examined this relationship and have not found a significant association, despite relative risks less than one. The dietary questionnaire used in this study did not include portion sizes, did not cover all major food groups and has not been validated. Reassuringly, the study did find associations between traditional reproductive factors such as parity and age at first birth and breast cancer risk. The cohort is characterised by high exposure to ionising radiation but this is unlikely to have had a marked effect on the relationship between soya consumption and breast cancer risk.

References

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