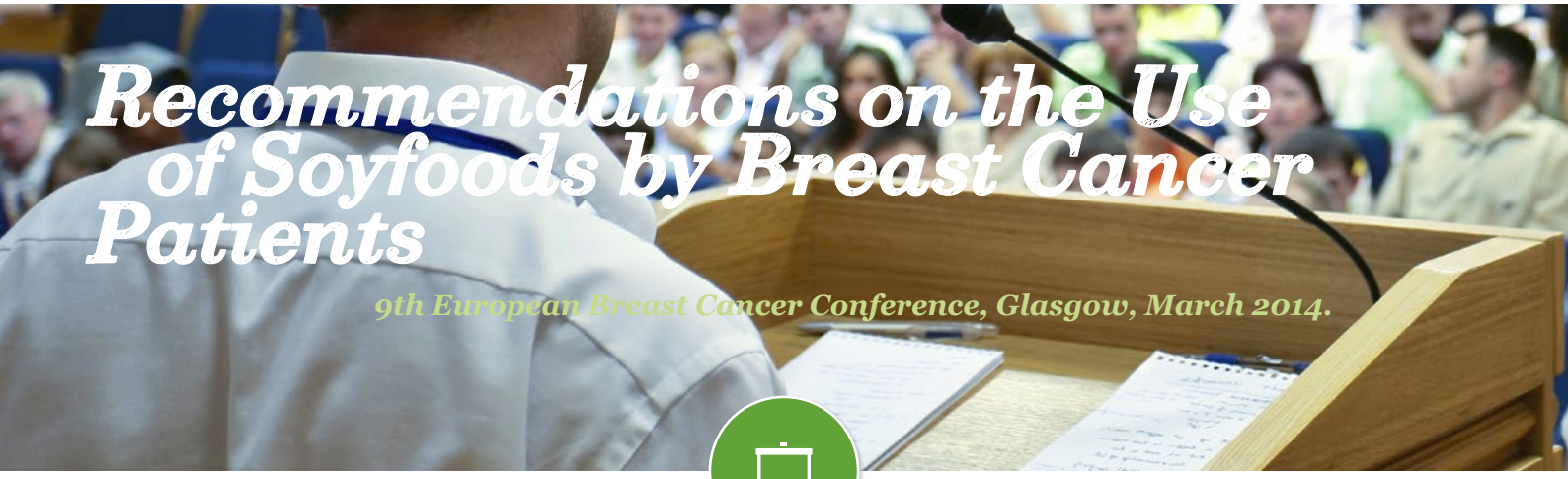

Recommendations on the Use of Soyfoods by Breast Cancer Patients

9th European Breast Cancer Conference, Glasgow, March 2014.

Lynne Garton, Consultant Dietitian and Nutrition Writer, provides an overview of the data presented

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Professor Messina is the chairperson of the editorial advisory board of The Soy Connection, a quarterly newsletter that reaches more than 250,000 dietitians and other health professionals. He is also the co-author of three books; The Simple Soybean and Your Health, The Vegetarian way, and The Dietitian's Guide to Vegetarian Diets: Issues and Applications

Time for Clinicians to Reconsider Their Proscription against the Use of Soyfoods

The relationship between soyfood consumption and breast cancer has been a topic of discussion for a number of years. On the one hand, studies have found it to be protective against breast cancer. Yet on the other, there has been concern about its safety in patients diagnosed with this disease. Where better to set the record straight than at the recent 9th European Breast Cancer Conference. Dr Mark Messina, from Loma Linda University in California, presented a thorough review of the latest scientific evidence which confirms that daily consumption of soyfoods is safe for breast cancer patients.

Breast Cancer in Asian countries?

Consuming soy has been suggested as one reason for the lower risk of breast cancer historically seen in soy-consuming countries. For example, countries such as China and Japan have a quarter of the risk of developing breast cancer compared to the United States. While these kinds of associations can't show cause and effect, it's highly probable that these differences in rates are due

to environmental factors, such as diet and health-related behaviours.

Soy and Breast Cancer

The concern over soy's safety in women diagnosed with breast cancer has arisen due to the presence of naturally occurring isoflavones in soy. Isoflavones have a chemical structure similar to estrogen and as such, are able to bind to estrogen receptors (ER). For this reason, they can exert weak estrogen-like effects under certain experimental conditions and so are classified as phytoestrogens. However, the evidence is clear that isoflavones are very different from the hormone estrogen. In fact, isoflavones are more accurately described as selective estrogen receptor modulators (SERMs). Underlying the tissue-selectivity of isoflavones is their much greater affinity for binding to ERß in comparison with ERĐ. In contrast, the hormone estrogen binds with equal affinity to both receptors. Nevertheless, the chemical similarities between estrogen and isoflavones still raised a theoretical concern.

However, a lot has been learnt in the last ten years about the relationship between hormone therapy and breast cancer risk. Indeed, several lines of evidence now indicate that estrogen therapy doesn't increase the risk of breast cancer. For example, in the Women's Health Initiative trial, the combination of estrogen and progestin therapy increased the risk of breast cancer, whereas estrogen alone decreased it. In 2013, the US Preventive Task Force concluded that the use of estrogen alone results in a small reduced risk of developing or dying of invasive breast cancer.

Data indicating estrogen doesn't increase risk would suggest isoflavones shouldn't either. Nevertheless, there are animal data showing that isoflavones, specifically genistein (the main soybean isoflavone), stimulate the growth of existing estrogen-sensitive mammary tumours in ovariectomized athymic mice implanted with breast cancer cells. These results are primarily responsible for many clinicians advising their patients against the use of soyfoods. However, this model has important limitations. Firstly, mice metabolise isoflavones very differently to humans. Secondly, when the medium used to culture the cancer cells, prior to implantation, is slightly modified in a way that better reflects the typical hormonal conditions in women, isoflavones no longer stimulate tumour growth. As such, animal studies are of limited value in resolving the controversy between isoflavones and breast cancer. Only human research can provide more definitive answers.

Human data

To date there are over fifty trials that have investigated the effects of isoflavone exposure on breast tissue and markers of breast cancer risk such as breast cell proliferation, breast tissue density and reproductive hormone levels. In these studies isoflavone exposure varied from typical dietary intakes to pharmacological doses. Even at high doses, these studies collectively show that neither soy, nor isoflavones, adversely affects markers of breast cancer risk. In fact, an Italian study of 138 postmenopausal women, found that over a three-year period, the women who received a high dose of genistein (54mg/day) maintained the protective BRCA1 and BRCA2 gene expression, whereas expression decreased in the placebo group. These observations provide a potential mechanism by which soyfoods could protect against breast cancer.

In terms of the epidemiological data, three studies have been conducted using populations from China (2) and the USA (1) involving over 9,500 breast cancer patients. Half were postmenopausal women and half premenopausal, half were Caucasian and half were Chinese. A pooled analysis of the data found that over the 7.4 year follow up period there were 1171 deaths from all causes, 881 breast cancer-specific deaths and 1348 breast cancer recurrences. After controlling for fifteen factors which potentially influence breast cancer risk, higher soyfood/ isoflavone intake was associated with a 17% reduced risk of breast cancer-specific mortality and a statistically significant 25% lower risk of tumour recurrence. The benefits of soy consumption were seen in both

Chinese and US women. Furthermore soyfood intake was beneficial even in women using tamoxifen. Other research found that soyfoods were also beneficial in patients using an aromatase inhibitor to treat their disease.

Consensus on the Use of Soyfood Breast Cancer Patients

Not surprisingly, the American Cancer Society, the American Institute for Cancer Research and a number of very prestigious medical institutions in the United States have concluded that breast cancer patients can safely consume soyfoods.

Interestingly Chinese researchers recently recommended that breast cancer patients specifically consume soyfoods in order to improve their prognosis, reduce recurrence and improve their survival. They based their conclusions on their own meta-analysis of the epidemiologic data which included, in addition to the three studies in the pooled analysis, two additional Chinese studies.

Dr. Messina presented the recent meta-analysis which pooled together the data from over 9,500 Caucasian and Chinese breast cancer survivors with an average follow-up period of 7.4 years. After controlling for fifteen confounding factors for breast cancer risk, higher soya food/isoflavone intakes were associated with a 17% reduced risk of breast cancer-specific mortality and a statistically significant 25% lower risk of tumour recurrence.

Advices

Dr Messina concluded by saying the evidence clearly indicates that women who are soy-consumers and develop breast cancer can safely continue to eat soyfoods. Furthermore, patients who want to include soyfoods in their diet for overall health reasons should not be discouraged from doing so.
As many breast cancer patients are going to live for many years without succumbing to their disease, they need to focus on overall health, which includes eating a healthy diet.

According to Dr. Messina, there is little doubt that soyfoods can make important contributions to an overall healthy diet.

Lynne Garton

Patients who want to include soya foods in their diets for overall health reasons should not be discouraged from doing so. As many breast cancer patients are going to live for many years without succumbing to their disease, they need to focus on overall health, which includes eating a healthy diet. Similar conclusions were reached by Professor Anthony Howell (Genesis Breast Cancer Prevention Centre and Institute for Cancer Sciences, Manchester) during his presentation on lifestyle interventions for breast cancer patients at the EBCC9 in Glasgow.