CASE STUDIES
in Lifestyle
MEDICINE

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When Diet and Exercise Aren't Enough: The Added Benefits of Connection, Community, and Psychosocial Support in Navigating Breast Cancer Treatment

Abstract: *Breast cancer is the most common cancer diagnosis in women, and many lifestyle factors have been linked to an elevated risk for development of the disease. This case provides an example of how breast cancer can occur even in people who engage in healthy lifestyle behaviors, yet underscores the importance of exercise, healthy dietary patterns, and addressing psychological distress in supporting women through their treatment and beyond.*

Keywords: breast cancer; diet; psychosocial support; exercise

MJ was 46 when she presented after being newly diagnosed with stage II breast cancer, looking for support as she prepared to

start chemotherapy. She had been closely followed because her mother was diagnosed with breast cancer at 50 years and had died 6 years later from

time to process and address her stress before beginning treatment.

Her past medical history was notable for menarche at 14 years. She was gravid

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complications of chemotherapy. Her own diagnosis came at the end of a very stressful year for her: her husband lost his job, her uncle passed away, and her aunt was struggling with health issues. She became anxious in the oncologist's office and felt she needed to take some

4, para 4, with normal spontaneous vaginal deliveries. She nursed her first 2 children 12 months each and the second two 6 months each. She had taken oral contraceptives for 10 years. She had a history of dense breast tissue by mammogram. She underwent sinus

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surgery at age 30 years following numerous sinus infections requiring antibiotics. She had a history of lactose intolerance and irritable bowel symptoms (diarrhea predominant), which were exacerbated by stress. Her only medication was occasional lorazepam for sleep, and she took no dietary supplements. She had lifelong good eating habits: whole grains, 2 servings of vegetables and salads every night, no red meat (occasional salmon), almond milk (since her lactose intolerance diagnosis), and cheese only rarely. She occasionally had a glass of wine but stopped drinking it after her diagnosis of breast cancer. She had been meditating and practicing qi gong regularly since she was young. She also worked with a Chinese medicine practitioner for acupuncture. She was a writer and a teacher and loved her work; she described a large circle of supportive friends. She was physically active doing aerobics and balance work twice weekly and walking and stretching most days. Her exam was notable for a well-appearing alert woman, height 5' 4" and weight 122 lbs (body mass index [BMI] = 20.9 kg/m²) with no truncal distribution of weight. Her blood pressure was 140/81 mm Hg, similar to her recent readings in the oncology office.

Lab tests were notable for a fasting insulin and glucose of 8.0 µIU/mL and 95 mg/dL with a hemoglobin A1c of 5.3 (normal). Her 25-OH vitamin D level was low at 16.9 ng/mL, for which she was started on 4000 IU vitamin D3 daily. She met with a nutritionist/dietician to focus on increasing her intake of polyphenolic rich fruits and vegetables, cruciferous vegetables, and foods rich in magnesium and B vitamins (such as dark leafy greens, quinoa, lentils). She also had several sessions with a licensed clinical social worker to address her stressors and feelings of fear related to her diagnosis and treatment.

She continued her meditation and acupuncture during her chemotherapy (adriamycin, cytoxan then taxol) and did well except for some neuropathy in her fingers. She ate well and exercised as tolerated, losing about 10 lbs during her

treatment. She encountered a few unexpected challenges: she elected to undergo bilateral mastectomy and radiation despite being BRCA negative, and there was a second 0.6-cm tumor found in the right breast with 6 positive lymph nodes. After re-reviewing her case, the hospital tumor board recommended that she also take herceptin, which prolonged her treatment course. She was treated twice for infection at the site of her tissue expanders before being diagnosed with a rare allergic reaction to the material used. With each of these new challenges, she experienced varying degrees of emotional distress and difficulty adjusting. She continued to consult with her behavioral therapist, expand her mindfulness practice, and work with her acupuncturist. She identified her friends and family as important sources of support during her treatment.

When she was seen 6 months after her original visit (following completion of her initial chemotherapy and surgery), she was doing well overall except for some abdominal bloating after meals, which she attributed to eating more summer fruit. Her menses stopped with her chemotherapy, and she was having some hot flashes, which were significant but tolerable. She was now taking tamoxifen along with her vitamin D and a multi-B complex. Her husband was now working as a CEO, and her children had done well during her treatments, each of them also working with a therapist. Repeat vitamin D level was 40 ng/mL.

Her next follow-up was 1 year later. She had continued to do well and had finished her treatments. Her passion about the role of mindfulness and self-care in her own journey inspired her to create workshops for other women with breast cancer on using writing and mindfulness practices in a supportive group environment as part of their healing process as they navigate their cancer treatments.

Breast cancer is the most common cancer diagnosis in women: according to the National Cancer Institute, 1 in 8 women will develop breast cancer over

an 80-year lifespan. Genetics, a woman's reproductive history, her age, lifestyle factors, and possible environmental exposures all contribute to the likelihood of a woman developing breast cancer.¹⁻⁵ The Gail model is one commonly used calculator to try and assess a woman's baseline level of risk for breast cancer by factoring in her age, ethnicity, age of menarche, age of her first live birth, presence of known high-risk mutations such as BRCA, number of first-degree relatives with breast cancer, and history of breast irradiation and breast biopsies showing atypical hyperplasia (available at <http://www.cancer.gov>). The Rosner-Colditz model adds in BMI, alcohol intake, and other reproductive factors to the risk calculation.^{6,7} Newer models being developed will include common single-nucleotide polymorphisms (SNPs) associated with elevated risk of breast cancer.⁸ The presence of dense breast tissue⁹ and higher-than-expected bone density have both been found to correlate with higher risk of developing breast cancer^{10,11}; one possible link is that the density of breast tissue and bones may be surrogate markers for tissue exposure to estrogen.

Lifestyle factors that have been linked to higher risk of breast cancer include weight gain after menopause, which may be mediated by insulin resistance and the associated increase in inflammatory adipocytokines.^{12,13} Working night shifts has also been associated with higher risk (possibly because of lower melatonin).^{14,15} Dietary factors that have been associated with higher risk include alcohol intake, potentially through an inhibitory effect on estrogen metabolism and/or an increased need for folic acid, which is needed for both methylation of reactive estrogen metabolites and for DNA repair.¹⁶⁻¹⁸ Low intake of omega-3 fatty acids, fiber, fruits, and vegetables has also been associated with higher risk of breast cancer, which may be in part because of the benefit of these foods and food components on reducing insulin and insulin resistance; reducing inflammatory cytokines; contributing to a more diverse gut microbiome; and enhancing estrogen excretion.¹⁹⁻²² The

role of vitamin D is less clear: epidemiological studies have shown an association between higher vitamin D levels and lower risk of progression and mortality, but the results from randomized controlled trials have not been consistent.²³ It may be that greater adherence to cancer prevention lifestyle guidelines is associated with higher circulation levels of vitamin D.²⁴ Regular physical activity has been associated with a 25% reduction in breast cancer risk, which is also thought to be a result of its favorable impact on insulin resistance and inflammation.^{25,26} Exposure to persistent organic pollutants (POPs) or endocrine disrupting chemicals (EDCs) may also increase the risk of breast cancer.²⁷

MJ's story is an example of someone who was already proactively following many of the lifestyle habits associated with reducing risk of breast cancer, yet still developed the disease. Her family history clearly contributed to her risk, and there may have been unidentified environmental exposures that played a role as well. Her diagnosis came following a prolonged time of stress, which raised an important area to explore with her. It is common after a cancer diagnosis for patients to look for the reasons "why": one study found that 46% of women believed that psychological distress contributed to their disease.²⁸ Review of research does not support this belief.²⁹ Furthermore, attributing the development of cancer to factors outside one's locus of control (such as stressful life events) can contribute to feelings of guilt, sadness, and anger.³⁰ This is not to downplay the potential impact of psychological distress on women's experiences and challenges when facing a diagnosis of breast cancer and undergoing treatment. Increasing research shows that mindfulness-based stress reduction (MBSR) practices can have a moderate to large impact on reducing stress, anxiety, and depression.^{31,32} Another study combined peer support groups with MBSR, and the results showed that the group environment facilitated the learning process, provided a safe space to

acknowledge and explore fear related to facing fellow patients, and resulted in an atmosphere that promoted the experience of social support.³³

Although MJ had already established a healthy dietary and exercise pattern prior to her diagnosis, she remains committed to continuing that lifestyle for her overall health and well-being. Unfortunately, this is not the case for many women. A recent secondary analysis of women with breast cancer who participated in a randomized trial on exercise found that >50% met the recommended guidelines for a healthy weight and alcohol consumption, yet only 31-39% met the recommended fruit and vegetable intake, and physical activity guidelines were achieved by only 13% to 31%.³⁴ When talking to women about the role of diet and exercise in breast cancer, practitioners need to frame the conversation in a way that is not about blaming patients for their disease nor placing lifestyle as a panacea. Instead, lifestyle can be positioned as a powerful adjunct to treatment, providing actionable steps patients can take to improve health and well-being overall, possibly lessen treatment side effects, and lower their risk of recurrence. Part of any long-term treatment plan following a diagnosis of breast cancer should include encouragement and support for incorporating more plant-based whole foods and regular movement/physical activity.

MJ's case highlights the additional benefits of mindfulness, behavioral therapy, self-care, and community support for women facing a diagnosis of breast cancer and undergoing treatment. Her embracing of these modalities and recognition of their importance in her own journey has also led to a positive impact on other women, through programs MJ created based on her personal experience and her passion for the power of lifestyle to help others.

Declaration of Conflicting Interests

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