A Model of an Integrative Approach to Breast Cancer Patients

Cristina Rossi, PhD1, Claudia Maggiore, MD1, Maria Maddalena Rossi, MSc1, Alessio Filippone, PhD1, Donatella Guarino, MSc1, Annalisa Di Micco, MD1, Luana Forcina, MSc1, and Stefano Magno, MD1

Abstract

Background: Breast cancer (BC) survivors have physical and psychological needs that require convincing responses by health care providers. The quality of life issue and clinical unmet needs are among the main reasons pushing a number of patients toward “natural” therapies that are often misleading and alternative to mainstream cancer care. Integrative Oncology (IO) tries to respond to many of those needs, by combining lifestyle counseling, body-mind activities, and complementary evidence-informed therapies with anticancer standard treatments. Methods: In our model at Fondazione Policlinico Gemelli (FPG), every woman diagnosed with a BC waiting for surgery or candidate to neoadjuvant chemotherapy undergoes a preliminary psycho-oncological distress evaluation and a brief lifestyle interview. Anthropometric measurements, body composition analysis, and individual levels of physical activity are recorded. Patients are given evidence based recommendations about the advisable diet and physical activity in a prehabilitation setting. A physician provides patients with information about integrative care plans to treat symptoms related to the disease or its treatments. Therapeutic approaches include acupuncture, mindfulness-based protocols, qigong, massage therapy, and classes of music/art therapy. Results: Between September 2018 and February 2020, the Center for Integrative Oncology at FPG has carried out 1249 lifestyle counseling sessions, 1780 acupuncture treatments, 1340 physiotherapy sessions, 3261 psycho-oncological consultations, 218 herbal medicine counseling sessions. Moreover, 90 BC patients completed the mindfulness based stress reduction (MBSR) protocol and 970 patients participated in qigong, art therapy, and music therapy classes. Conclusions: Our integrative approach aims to achieve a person-centered medicine by improving symptoms management, adherence to oncological protocols, and eventually overall quality of life.

Keywords
integrative oncology, breast cancer, personalized medicine, lifestyles, unmet needs

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Worldwide, an estimated 33% to 47% of cancer patients use complementary, alternative or integrative medicine during their therapeutic process, while more than 80% of BC survivors reported using integrative therapies during and beyond cancer treatments.\textsuperscript{14-20}

Integrative oncology (IO) is a “patient-centered, evidence-informed field of cancer care that utilizes mind and body practices, natural products, and/or lifestyle modifications from different traditions alongside conventional cancer treatments. Integrative oncology aims to optimize health, quality of life, clinical outcomes across the cancer continuum, and to empower people to prevent cancer and become active participants before, during, and beyond cancer treatment.”\textsuperscript{121}

A growing number of randomized controlled trials suggest that selected integrative therapies may improve the management of symptoms and side effects as a result of BC and its treatment.\textsuperscript{22} In 2018, the American Society of Clinical Oncology (ASCO) endorsed the clinical guidelines released by the Society for Integrative Oncology (SIO) for BC patients.\textsuperscript{23}

Despite the widespread use of integrative treatments among BC patients and the available evidence about their safety and efficacy, facilities, and services providing those treatments inside the clinical cancer centers are not widely available around the world and particularly in Europe, even though their numbers are increasing.\textsuperscript{24}

The Breast Unit at Fondazione Policlinico Gemelli (FPG) in Rome is the leading Unit in Central-Southern Italy, with over 1000 new BC cases treated per year. Since 2014, thanks to the support of a non-profit organization (Komen Italia), an IO service within the Breast Unit has provided BC patients with psycho-oncological support, lifestyle counseling, and integrative treatments (Figure 1). After 5 years of clinical activities, at the end of 2019 a Center for Integrative Oncology was founded as a model of a holistic approach to every woman diagnosed with a BC.

The first step of this model is a comprehensive assessment that every BC patient waiting for surgery or neoadjuvant chemotherapy undergoes a few days after diagnosis: a preliminary psycho-oncological evaluation of the distress performed by a psycho-oncologist and a brief lifestyle interview. In addition, anthropometric parameters and body composition values are recorded by a trained dietician focused on oncology. The aim is to identify physical and psychological critical issues that may affect patient’s compliance to treatments and intervene with specific prehabilitation programs, in order to reduce treatment-related side effects and improve outcomes.\textsuperscript{25}

After this preliminary assessment, during the preoperative period (a 4-6 weeks window of opportunity), psychological support, acupuncture, plantar reflexology, and/or qigong seminars may be proposed, depending on the distress codes, anxiety, sleep, and mood disturbances recorded (Figure 2). Our team is composed of 4 trained dietitians, 2 psycho-oncologists, 3 physicians trained in acupuncture and traditional Chinese medicine, a mindfulness teacher, 2 breast nurses trained in shiatsu and reflexology, a physiotherapist, a qigong teacher, and a music-therapist.

The model is based on a personalized prescription given by a physician trained in IO rather than on demand by the patient; in other terms, every complementary procedure must be prescribed, based on evidence of efficacy and safety, according to woman’s symptoms, concomitant therapies, and preferences.

\textbf{Methods}

\textbf{Lifestyle counseling}

Physical activity (PA), nutrition, body composition, and metabolism play a key role in almost every aspect of cancer onset, progression, and management.\textsuperscript{26,27} Unfortunately, an appropriate nutritional and PA screening is not widely available in the routine management of BC patients, even in high quality Breast Units.\textsuperscript{28-30}

In our model, every patient waiting for surgery or candidate to chemotherapy undergoes a brief lifestyle interview, called SIVO (integrative questionnaire of holistic evaluation), focusing on 5 areas (nutrition, physical activity, social relations, sexuality, and spirituality). Individual levels of PA are recorded through the International Physical Activity Questionnaires (IPAQ), while risk for malnutrition is investigated through a specific 6-item Mini Nutritional Assessment questionnaire (MNA\textsuperscript{®}).

Anthropometric measurements include body weight, height, body mass index (BMI), body circumference (waist, hip), and waist to hip ratio (WHR), while body composition analysis is measured by the Segmental Multi-Frequency-Bioelectrical Impedance Analysis (SMF-BIA), a non-invasive and widely used method for estimating body fat (FAT) and fat-free body mass (FFM), phase angle (PA), and total body water (TBW).

Every patient receives recommendations about diet and PA based on the latest scientific evidence,\textsuperscript{26,31} while patients who are candidates for chemotherapy are given additional nutritional advice to manage chemo-related side effects.\textsuperscript{31,32} Patients with important comorbidities, such as heart disease, diabetes mellitus, and gastrointestinal resections may be referred to a specialist for a second level nutritional counseling. The lifestyle counseling sessions are performed by trained dietitians, expert in oncology.

\textbf{Breast school}

A few days after surgery, BC patients are referred to a physiotherapist and may take part to dedicated classes (Breast School), in order to expedite recovery and prevent
functional limitations, local pain, and lymphedema of the shoulder and upper arm.

The conditions to participate in Breast School classes are (a) having undergone a surgical procedure on the axilla (sentinel lymph node biopsy, sampling, or radical lymphadenectomy), (b) without any reconstructive procedure (prosthesis and/or autologous tissues). The rehabilitation program, based on active and passive shoulder movements, includes 10 sessions, twice a week, or less, according to the individual needs assessed by the physiotherapist.

Complementary therapies

In our Breast Unit at FPG, the integrative oncology (IO) interviews performed by a physician trained in integrative medicine have become part of the standard care for all BC patients. During this consultation, a specialist evaluates the patient’s lifestyle, smoking/alcohol consumption, use of natural products (such as herbs and dietary supplements), sleep hygiene, side effects, and symptoms, in order to suggest non-pharmacological interventions, according to their needs, health status, and preferences. If necessary, the IO specialist refers the patient to other counselors (Figure 2).

According to the SIO guidelines, therapeutic approaches include acupuncture, mindfulness-based protocols, qigong, massage therapy, and classes of music/art therapy.

Acupuncture is a cost-effective and safe procedure for symptoms management, particularly when conventional treatments are ineffective or burdened by notable side effects. The National Comprehensive Cancer Network (NCCN) Guidelines recommend acupuncture for pain, fatigue, nausea/vomiting, and hot flashes.

As regards chemotherapy-induced peripheral neuropathy (CIPN), a challenging symptom to manage in oncological patients, acupuncture may be considered in selected patients, according to the latest ESMO guidelines.

Our Center for Integrative Oncology takes part in an ongoing multicenter clinical trial on Acupuncture for CIPN in BC patients.

Mindfulness-based stress reduction (MBSR) techniques, through the development of a nonjudgmental awareness of the present moment, have been shown to reduce distress, improve psychological well-being, and positively impact sleep quality and quantity in cancer patients. In randomized trials, MBSR techniques showed also benefits in decreasing fatigue, depression, anxiety, fear of cancer recurrence, and improved health related quality of life.

In addition, evidence is emerging that mindfulness meditation is effective for chronic pain.

Over the last 20 years, mind-body therapies including qigong, yoga, tai-chi, and meditation have been taken into increasing consideration by the scientific community, thanks to an excellent profile of safety and efficacy. At FPG, we offer qigong sessions in order to prevent or alleviate common side effects and complications such as mood disorders, depression, fatigue, and BC-related lymphedema.

Plantar reflexology, a safe and very well-accepted procedure, is used to mitigate pain, anxiety, and sleep disorders that are poorly controlled by conventional pharmacological treatments.

Music therapy encompasses active (eg, singing, using percussive instruments, playing with sounds) and passive (eg, listening) techniques and it has shown benefits on anxiety, depression, pain, and cancer related fatigue in BC patients, either in descriptive and experimental studies.

Art therapy, an intervention aimed to help patients and caregivers to cope with the disease and adapt to stressful experiences, has been used in a variety of clinical settings and populations, although few studies have been carried out in cancer patients; it could play a role in cancer patients who may be uncomfortable with conventional psychotherapy or those who find verbal expression difficult.

Results

In FPG, between September 2018 and February 2020, out of 1500 BC patients, 83% underwent a lifestyle counseling and 85% a psycho-oncological consultation before surgery or neoadjuvant chemotherapy. During the same period, 1780 acupuncture treatments, 1340 physiotherapy sessions, and 218 herbal medicine counseling sessions have been carried out. Moreover, 90 patients completed the MBSR protocol and 970 participated in qigong, art therapy or music therapy classes.

Discussion

A remarkable number of studies have highlighted a significant correlation between BC patient's nutritional and functional status and oncologic outcomes, morbidity and mortality rates, perioperative complication risks, toxicities related to treatments, and quality of life. Despite this, the majority of cancer patients do not follow the dietary recommendations and do not achieve the recommended PA levels after being diagnosed with BC.

Our integrative model at FPG, through a nutritional and metabolic screening immediately after diagnosis, aims to tailor the recommendations to every patient, according to her attitudes and preferences, in order to improve adherence to healthy lifestyles.

Moreover, cancer patients usually show a strong interest in nonpharmacologic therapies and complementary approaches, but they frequently hold incorrect information and fail to distinguish between “integrative/complementary” and “alternative.” Fears about toxicity, personal beliefs, and medical myths are some of the reasons pushing patients toward expensive, useless, and potentially harmful remedies.
alternative to mainstream cancer care. According to the authors’ experience, the chance to benefit from evidence based complementary therapies alongside conventional treatments within the hospital facility discourages patients to search for alternatives, whilst it improves their quality of life and the compliance to mainstream protocols.\textsuperscript{75}

The present article has obviously many limitations: it does not include data characterizing the patient population,
the distribution of BC subtypes, and different stages of the disease. Furthermore, it does not provide information about the clinical outcomes for any given indication.

We aim to collect clinical data and questionnaires to assess whether this model is effective in order to improve patients’ nutritional and lifestyle habits, quality of life, and eventually their adherence to the oncological protocols. Further studies are needed to assess what patients feel about the service and to validate this kind of approach as a standard of care.

**Conclusion**

Integrative Oncology combines lifestyle counseling, body-mind activities, and complementary therapies with anticancer standard care, in order to improve the management of symptoms, the adherence to oncological protocols and eventually overall quality of life before, during, and after treatments.

In the clinical management of a patient diagnosed with breast cancer, an adequate preoperative assessment should include nutritional and physical activity screening and body composition analysis in order to find out critical issues and leverage lifestyle interventions for improving outcomes. Alongside and beyond the mainstream oncological care, this integrative approach should be safe, rational, and evidence-based, including reliable answers to the multiple unmet needs of every BC patient, in order to achieve a real person-centered medicine, rather than focused on the disease.

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**Ethical Approval**

The ethical review board of Fondazione Policlinico Gemelli determined that ethical approval of this study was not required.

**ORCID iD**

Cristina Rossi [https://orcid.org/0000-0001-5157-6681](https://orcid.org/0000-0001-5157-6681)

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