

Breast Cancer Patients

Evaluating a new and innovative diet and exercise clinic



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Breast cancer is the most common cancer in women in the UK; accounting for 31% of cancer diagnosis in women in 2013. Incidence of breast cancer has increased by more than half since the late 1970s, and many cases are thought to be caused by lifestyle factors; with 9% of cases linked to overweight and obesity.¹ Weight gain is commonly reported after diagnosis in this patient group and is a significant concern as weight gain of 10% or more has been linked to worse survival and an increased risk of recurrence;² studies have shown that there is a 33% increase in breast cancer mortality in obese *versus* non-obese women. Patients who experience significant weight gain will also be at higher risk of comorbidities, including diabetes, heart disease and stroke, as well as psychological issues such as poor body image and reduced quality of life.³ Studies suggest that patients are unlikely to lose weight after treatment has ended.⁴ Therefore, tailored diet and exercise programmes should be considered to support patients to make healthy lifestyle changes during and post treatment.

Breast cancer treatment usually involves surgery, followed by a combination of chemotherapy, radiotherapy, endocrine therapy and biological therapy depending on the size, position, grade and receptor status of the cancer. Studies demonstrate that adjuvant chemotherapy is an independent predictor of weight gain⁵ and significant weight gain of 1-6 kg is common after chemotherapy.³ More specifically, there is often an adverse change in body composition, with an increase in central fat mass and reduction in lean body mass; termed as sarcopenic obesity. Sarcopenic obesity can have significant adverse functional implications, such as reduced muscular strength and mobility.

Weight gain in this patient group appears to be caused by a variety of factors, including reduced metabolic rate due to rapid onset of menopause and a decline in physical activity levels.⁴ Anecdotally patients receiving chemotherapy have reported issues such as emotional eating, taste changes and cravings for high fat foods, increased appetite due to steroids and a lack of awareness of the risks of weight gain.

There is a wealth of research into the benefits of physical activity in cancer rehabilitation; a recent meta-analysis showed that breast cancer risk decreases by 5% for every two hour increment in moderate or vigorous activity per week.⁶ Physical activity has been shown to help prevent weight gain, reduce fatigue and improve quality of life.⁵ However activity levels often diminish during breast cancer treatment,⁵ and fatigue

was named as one of the top burdens on cancer patients after fear and anxiety;⁷ this emphasises the need to promote exercise in this patient group.

A variety of weight loss interventions have been trialled in breast cancer patients. Evidence suggests that services which offer a combination of dietary advice, behaviour modification and aerobic and strength training exercise have the potential to prevent weight gain, promote weight loss and improve lifestyle behaviors in this patient group. Interventions have also shown the ability to reduce biomarkers associated with inflammation and comorbidity and improve functional status and quality of life.⁹ Allied health professionals, such as dietitians and physiotherapists, are well-placed to promote wellness in a supportive environment and help to provide a cost-effective solution to these issues.

Aims

In October 2014, a steering group was formed at Mount Vernon Cancer Centre, including consultant oncologists, clinical radiographers, a breast care nurse, Macmillan oncology dietitian, physiotherapist and lymphoedema nurse.

The aim of the project was to develop a service to help patients with breast cancer lose weight and increase their levels of physical activity after treatment, in order to reduce their risk of cancer recurrence and improve their quality of life.

Method

Suitable patients with curative breast cancer were referred by radiographers, breast care nurses and oncologists, and were contacted and offered a 1:1 appointment. The dietitian completed a dietary assessment and considered barriers to change and psychological factors that may have an impact on weight loss. The dietitian used behaviour modification techniques and a collaborative approach to help support and motivate patients to make changes to their diet and lifestyle and improve their relationship with food. Appropriate tailored dietary advice was provided to patients regarding how to achieve a balanced diet, healthier portion sizes, healthier cooking methods and a reduced calorie intake from high sugar or high fat foods and drinks. Other advice included practical advice on how to achieve an adequate calcium intake as patients may be at an increased risk of developing osteoporosis as a result of their treatment. Written information was provided to enhance the face-to-face consultation and patients were reviewed every 3-8 weeks depending on their clinical need and ability to attend the Clinic.

All patients were also offered an appointment with a physiotherapist. During the initial consultation the physiotherapist assessed baseline arm range of movement, mobility and activity levels. Patients were given specific stretches and exercises to improve their mobility, and tailored advice around exercise to aid weight loss and reduce levels of fatigue. If appropriate, patients were invited to a longer session in which they were able to use gym equipment, such as treadmills, under the direction of the physiotherapist. Clinic appointments with the dietitian and physiotherapist typically lasted 30-60 minutes, with the mean number of appointments being three per patient for both the physiotherapist and the dietitian. Appropriate patients were then referred to a local exercise scheme, such as the Macmillan and YMCA 'Move More' programme, which involved free or subsidised gym membership and support from a trained instructor.

Outcome measures

During the initial consultation the dietitian completed an in-depth assessment, which included measuring the patient's weight, height, body mass index (BMI), and percentage weight gain since diagnosis (based on patient recall). Baseline physical

activity was assessed using the Godin-Shephard Leisure-Time Physical Activity Questionnaire.⁹

A follow-up questionnaire was mailed to 70 patients in April 2016, which included an evaluation questionnaire to gain qualitative data about a patient's experience of the Clinic, a Godin-Shephard Leisure-Time Physical Activity Questionnaire and a request for patients to record their current weight. Questionnaires were sent back to the Supportive Oncology Research Team to maintain confidentiality.

Results

Weight change

Mean weight at the initial appointment with the dietitian was 89.8 kg (range 54-137.5 kg), BMI 34 (range 21-48.7) and 36% patients reported weight gain of ≥ 7 kg since diagnosis. **Table One** shows a summary of patient data at initial appointment and follow-up.

Thirty-two patients returned the follow-up questionnaire. Twenty-one patients provided a weight on their questionnaire response. A 'last known' weight was also included in the evaluation, which was either from a patient's dietetic record cards, medical notes or the postal questionnaire response (N=57). Seventy-nine per cent of patients lost weight after attending the Diet and Exercise Clinic. **Figure 1** shows the % weight change for patients after attending the Clinic.

Weight data was available at discharge and postal follow-up for 18 patients (see **Figure 2**). Three patients gained weight (although 2 were still below their baseline weight), two patients maintained a stable weight and 13 patients continued to lose weight (see **Figure 2**). This indicates that on the whole patients were able to maintain healthy lifestyle changes after being discharged from the Clinic.

Table One: Summary of Patient Data – Age and weight data

Time Point	Mean age (years)	Range (years)
Initial appointment (N=70)	52	30-78
Postal follow up (N=32)	53	35-67
	Mean weight gain since diagnosis (kg)	Range (kg)
Initial appointment (N=60)	6.5	-3 to +31.5
	Mean weight (kg)	Mean BMI (kg/m ²)
Initial appointment (N=70)	89.8	34.1
On discharge from clinic (N=33)	86.1	32.3
Last known weight (N=57)	87.1	33.0
Postal follow up (N=21)	85.1	31.7

Figure 1: Percentage % Weight Loss from Initial Appointment to Last Known Weight (N=57)

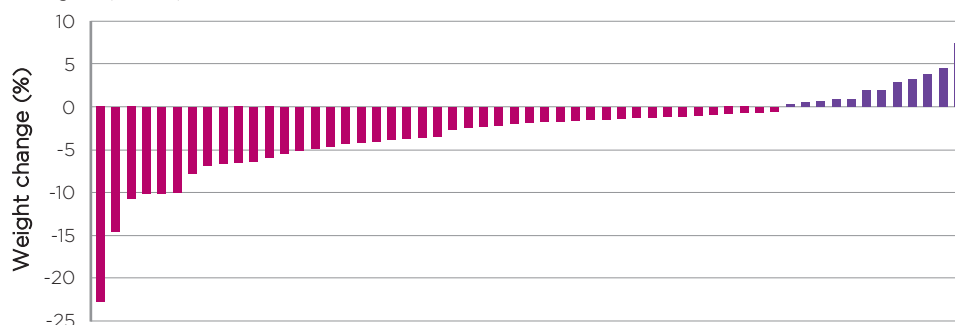
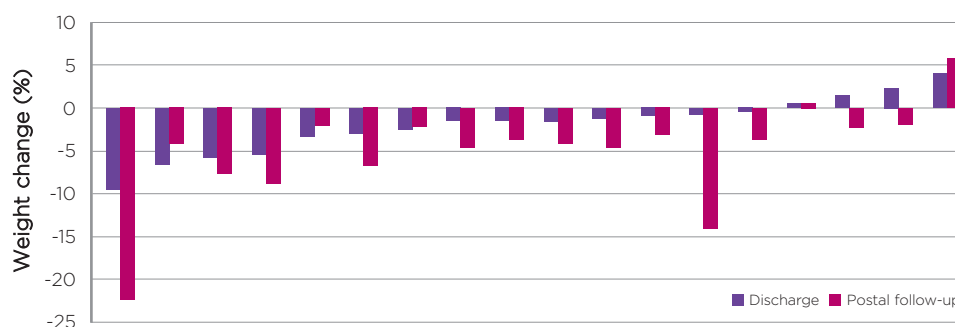


Figure 2: Weight Change (kg) Since Discharge from Clinic and Postal Follow-up



Activity data

Eighty-one per cent of patients increased their activity level (between baseline and postal follow-up). The median score on the Godin-Shephard Leisure-Time Physical Activity Questionnaire increased significantly from 9 METS (metabolic equivalents) to 30 METS; this could approximately equate to an increase from three sessions of mild exercise per week, such as gentle walking, to six episodes of moderate exercise per week, such as fast walking.

Patient feedback

- 69% found the Clinic 'helpful' or 'extremely helpful.'
- 53% had lost weight but would like to lose more
- 84% would recommend the Clinic to other patients
- 66% agreed they had a better understanding of a healthy diet
- 47% felt they had a better relationship with food.

Comments about the Clinic included:

- *"I learned to examine my motives, frame of mind, etc. I still refer to my notes, was grateful for the dietitian's help and patience."*
- *"The dietitian used clear, effective descriptions; she listened and tailored the conversation to me."*
- *"The dietitian has given me motivation and I feel a successful outcome is do-able."*
- *"Very impressed with their knowledge, input and advice."*

Patients with mobility problems benefited greatly from seeing the physiotherapist; without this specialist advice it is unlikely that certain patients would have been successful in increasing their activity levels. Comments included:

- *"It was life changing. A few basic exercises gave me back mobility levels I had lost, and the confidence to continue trying to improve. Physio was brilliant, patient and encouraging - thanks!"*
- *"The physio has been very helpful with managing pain in my feet, hips and neck. I suffer with arthritic pain which has been reduced by specific exercises shown by the physio."*
- *"Physio was very good and even gave me exercise for my bad knee as well."*

Patients were asked what areas of the Clinic could be improved, responses included:

- *"Exercise classes offered there."*
- *"Availability of appointments."*
- *"Evening appointments."*
- *"I think this should be offered at the start of treatment."*

Discussion

Our evaluation does have limitations, including the small sample size. The data we have is also cross-sectional in that some patients were still receiving adjuvant chemotherapy, radiotherapy or endocrine therapy and some patients were still attending the Clinic. This makes the data interpretation challenging as some patients may have continued to lose weight and improve their activity levels and quality of life after the time of evaluation. Despite these limitations, the evaluation demonstrates the clear benefit to patients, including increased activity levels and weight loss, which can help to reduce the risk of cancer recurrence.

Interestingly, at the time of evaluation, 17 (24%) patients attending the Diet and Exercise Clinic had been referred for counselling due to issues such as depression, anxiety, poor sleeping and poor self-esteem. Many patients reported being 'stuck in a vicious circle' due to issues such as emotional eating, which had made previous attempts at losing weight unsuccessful. Poorer quality of life and depressive symptoms have been shown to be more common in younger breast cancer patients.⁵ Research has identified a strong relationship between successful weight loss and psychological wellbeing,¹⁰ highlighting the importance of adequate psychological support in this patient group.

Patients were mostly referred to the Diet and Exercise Clinic after finishing chemotherapy treatment. Our evaluation demonstrates the potential benefits of earlier intervention to help prevent weight gain after diagnosis in this patient group. This is supported by previous studies, which suggest that lifestyle interventions during chemotherapy treatment for breast cancer are not only feasible but benefit patients in many domains.⁴ Consequently, from July

2016, breast cancer patients attending pre-chemotherapy consultations are given advice and written information about healthy eating, regular physical activity and the importance of maintaining a stable weight during treatment. It is expected that with earlier guidance and support patients will be able to reduce weight gain during treatment and improve their activity levels, potentially reducing fatigue.

Summary

Weight gain after a diagnosis of breast cancer is common and is a serious concern as it can increase the risk of cancer recurrence and may have a negative impact on general health and wellbeing in survivorship.

Our evaluation demonstrates that allied health professionals are well-placed to deliver effective secondary prevention interventions for breast cancer patients. With appropriate advice and support patients can achieve weight loss and increase activity levels after treatment. Earlier intervention at the start of treatment may help patients to avoid weight gain and maintain, or improve, mobility and exercise levels.

There is opinion that during, or on completion of, cancer treatment there is a 'teachable moment' which provides an opportunity for successful lifestyle interventions. The benefit of secondary prevention and survivorship projects should be considered in other patient groups at risk of unhealthy weight gain and reduced activity levels during treatment as a proactive and cost-effective approach to patient care.

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Acknowledgements: The Diet and Exercise Clinic was set up with the help of a grant from the Beds and Herts Cancer Forum. This evaluation was completed with the help of the Supportive Oncology Research Team at Mount Vernon Cancer Centre. Thanks to the Royal Marsden Department of Nutrition and Dietetics and Physiotherapy for advising about appropriate evaluation tools.