



ORIGINAL RESEARCH PAPER

Physiotherapy

ROLE OF EXERCISE THERAPY IN IMPROVING THE QUALITY OF LIFE IN CANCER SURVIVORS– A REVIEW

KEY WORDS: Quality of life, Range of motion, Fatigue, Cardiovascular Health, Strength Training

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ABSTRACT

The aim of this paper is to comprehensively review the literature concerning this topic and summarise existing knowledge on the role of exercise therapy techniques in improving the quality of life of cancer patients. This paper provides a narrative review of literature in this area. Furthermore, this review identifies areas for further research and makes recommendations for clinical practice.

INTRODUCTION

Pain, frailty, fatigue, weight loss, and reduced physical function are common among cancer patients with advanced and incurable disease and negatively impact their quality of life (QoL). Symptom control and maintaining or improving functions are therefore central goals for the treatment of these patients. With more cancer patients recovering or surviving for long periods, techniques are needed to help them overcome the disabling effects of the disease, the therapies, and prolonged immobilization. Previous research and clinical observations indicate that exercise is a promising restorative technique for cancer patients.¹

Advances in treatment methods have led to increased survival and cure rates for individuals with a variety of malignant neoplasms. Expectation of increased survival rates has focused attention on the need for rehabilitative techniques to mitigate the disabling consequences of disease and therapy. Progressive loss of function is commonly reported in cancer patients; however, it is unclear whether this deterioration is due to cancer and its therapy or to the debilitating effects of inactivity and bed rest. The immobilization syndrome in itself can lead to lifethreatening conditions. Decreased muscle strength and endurance, negative nitrogen balance, phlebothromboses, pneumonitis, renal calculi, increased diuresis, orthostatic hypotension, and skin breakdown are but a few of the well-documented consequences of prolonged inactivity. Many of these complications can be prevented by moderate activity. Despite an accumulation of data showing that activity is beneficial for clinical populations, well-meaning health professionals continue to recommend rest and inactivity to their patients. When treatment, disease, and hypokinetic conditions combine, there is dramatic loss of functional ability that can compound the emotional distress of cancer patients.²

REVIEW OF LITERATURE

Justin C. Brown et al(2010) did a study to explore the efficacy of exercise as a nonpharmacologic intervention to reduce cancer-related fatigue (CRF) In total, 44 studies with 48 interventions qualified, including 3,254 participants of varying cancer types, stages of diagnosis, treatments, and exercise interventions. Cancer survivors in exercise interventions reduced their CRF levels to a greater extent than usual care controls, an effect that appeared to generalize across several types of cancer. CRF levels improved in direct proportion to the intensity of resistance exercise a pattern that was stronger in higher quality studies.³

Shirin Shallwani et al(2015) did a retrospective study on 41 MM patients referred to a hospital-based rehabilitation program while undergoing chemotherapy, to find out the effectiveness of exercise program on improving their health condition. The mean

age of the participants was 61 years. Overall exercise compliance at T2 was 71 %, with an observed increase in exercise and decrease in fatigue severity scores. Factors associated with exercise noncompliance included history of pathological fracture spinal cord compression (SCC), and radiation. Despite frequent issues related to skeletal fragility, the MM participants in this retrospective study demonstrated high compliance with exercise recommendations and associated improvements in fatigue severity.⁴

Melinda Craike et al(2013) conducted a study on 229 individuals suffering from MM. This study aims to examine, for people treated for MM, (1) differences between prediagnosis and postdiagnosis levels of physical activity, (2) perceived barriers and likelihood of attending a physical activity program, and (3) factors that influence whether or not respondents are meeting physical activity guidelines. It concluded that People with multiple myeloma reported very low levels of physical activity across all levels of intensity; however, they were interested in attending a physical activity program. To increase physical activity among people with multiple myeloma, interventions should target perceived barriers with a particular focus on those who were not physically active prior to diagnosis.⁵

F.Dimeo et al(2008) conducted a study to check effects of an endurance and resistance exercise program on persistent cancer-related fatigue after treatment. A consecutive series of 32 cancer patients with mild to severe persistent fatigue [scores on the Brief Fatigue Inventory (BFI) > 25] participated in a 3-week exercise program consisting of endurance (30 min walking on a treadmill) and resistance/coordination exercises for the major muscle groups. Fatigue, mood, and anxiety were assessed with questionnaires and physical performance with a stress test before and after the program. A 3-week exercise program lead to a substantial improvement of physical performance and reduction of mental and physical fatigue in cancer patients after treatment. However, this intervention did not affect depression, anxiety, or cognitive fatigue.⁶

Fiona Cramp et al(2010) conducted a review to evaluate the effect of exercise on cancer-related fatigue both during and after cancer treatment. Twenty-eight studies were identified for inclusion (n = 2083 participants), with the majority carried out on participants with cancer (n = 16 studies; n = 1172 participants). A meta-analysis of all fatigue data, incorporating 22 comparisons provided data for 920 participants who received an exercise intervention and 742 control participants. At the end of the intervention period exercise was statistically more effective than the control intervention. This review came to the conclusion as follows: Exercise appears to have

some benefit in the management of fatigue both during and after cancer treatment. Therefore it should be considered as one component of the management strategy for fatigue that may include a range of other interventions and education.⁷

Jeffrey K.H. et al(2005) conducted a study to examine differences in quality of life (QoL) between survivors meeting and not meeting public health exercise guidelines. The results of this study provide evidence that cancer survivors meeting public health exercise guidelines on and off treatment reported higher current QoL than those survivors not meeting guidelines. These findings corroborate research examining exercise behaviour in other cancer survivor groups and provide preliminary data to support a randomized controlled trial on exercise and QoL in this population.⁸

Fernando C. Dimeo et al(1997) conducted a pilot study, the authors evaluated the feasibility and effects of aerobic training in the rehabilitation of cancer patients after completing high dose chemotherapy. Sixteen patients participated in a specially designed rehabilitation program for 6 weeks. The patients entered the program, which consisted of walking on a treadmill, shortly after completing treatment. Sixteen patients who did not train served as controls. Physical performance (maximum speed on the treadmill test), cardiac function, and hemoglobin concentration were compared at the time of discharge from the hospital and 7 weeks later. At the second examination, fatigue and limitations in daily activities due to impaired endurance were assessed during personal interviews. This study concluded that Aerobic exercise improves the physical performance of cancer patients recovering from high dose chemotherapy. To reduce fatigue, this group of patients should be counseled to increase physical activity rather than rest after treatment.⁹

Study, by Winningham and MacVicar, was a comparison of three groups of untrained women (n = 16). Stage II breast cancer patients on chemotherapy were randomized to an exercise and a nonexercise (control) group. A third group consisting of exercising, age-matched healthy women was used for comparison. The exercise treatment consisted of ten weeks of triweekly aerobic interval training on a cycle ergometer. The exercise group showed marked improvement in fitness level on the graded exercise test when compared with the nonexercising cancer patients (a 20.7% increase vs a 1.8% decrease in Vo₂ peak). Further, the exercising cancer patients on chemotherapy demonstrated an increase in Vol peak (functional capacity) similar to that of the healthy women (17.4%). The researchers were surprised by patient reports of decreased feelings of nausea within minutes of beginning an exercise session.¹⁰

Mac Vicar and Winningham⁶ obtained additional data on cancer patients' exercise experiences by conducting a survey of 254 cancer patients (ages 10 to 77) identified as regular exercisers. Forty-four percent reported problems maintaining an exercise program; half of these stated that easy fatigability was the biggest problem. Two thirds of the participants reported that they were able to maintain some sort of exercise regimen throughout their period of treatment even though they had no guidance in this regard. Furthermore, 85% of the respondents listed exercise counselling as a significant unmet need for cancer patients.¹¹

Buettner and Gavron reported on two groups of men and women who had a history of cancer. An exercising group and a sedentary control group were compared on estimated Vol max, grip strength, reduction in resting heart rate, weight, skinfold thickness, and several psychological variables. The exercising subjects showed improvement on all measures after an eight-week aerobic training program; however, only two of the subjects were undergoing treatment for cancer at the time.¹²

CONCLUSION

Many researchers have shown that exercise therapy is beneficial in improving quality of life in cancer patients.

In line with previous studies, it can be concluded that exercise

therapy is beneficial for improving the quality of life in cancer survivors.

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