

Is exercise ignored in palliative cancer patients?

Sibel Eyigor, Sedef Akdeniz

Sibel Eyigor, Sedef Akdeniz, Rehabilitation Department, Faculty of Medicine Physical Therapy, Ege University, 35100 Bornova, Izmir, Turkey

Author contributions: The authors contributed to this paper.

Correspondence to: Sibel Eyigor, MD, Rehabilitation Department, Faculty of Medicine Physical Therapy, Ege University, Erzene Mh., 35100 Bornova, Izmir, Turkey. eyigor@hotmail.com

Telephone: +90-23-23903687 Fax: +90-23-23881953

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Abstract

Exercise and rehabilitation approaches in palliative care programs for cancer patients affect patients' symptoms, physical functioning, muscle strength, emotional well-being, psychological symptoms, functional capacities, quality of life, mortality and morbidity positively. Based on scientific data, palliative cancer patients should be recommended to participate in exercise programs. There is no standard approach to recipe an exercise regimen for a palliative cancer survivor. Studies for demonstrating the positive effects of exercising in palliative care patients are increasing in number day by day. At this point, increasing awareness about exercising in the entire team monitoring the patient and our efforts in this matter seems to be very important.

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Key words: Palliative care; Cancer; Exercise; Rehabilitation; Muscle

Core tip: Although cancer patients are in great need of physiotherapy and rehabilitation, this is often ignored by health professionals. For this reason, the role of physiotherapy and rehabilitation during palliative care in cancer patients is limited in both clinical practice and literature. Exercise in palliative care should definitely be considered since it is easily administered and safe and is beneficial for the patient.

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INTRODUCTION

Cancer and intensive medical therapies administered due to cancer affect the physical, functional, emotional, psychological and social statuses of patients^[1]. There are many factors that cause disability in cancer patients. These factors include fatigue, treatment complications, malnutrition, neurological and musculoskeletal problems, pain, intestinal and bladder dysfunctions, thromboembolic disease, depression, and presence of comorbid diseases^[2-9]. The resulting physical disability leads to depression, decreased quality of life, and increased need for care and health expenditures^[2,10-12]. Right at this point, we, rehabilitation physicians assume great responsibility. The first study that documented the need for cancer rehabilitation was published by Lehman *et al*^[5]. In that study, 805 cancer patients were examined and 438 patients were found in need of rehabilitation; this need was reported to be as high as 70% in patients with breast, lung, and head-neck tumors. There was functional loss associated with physical weakness in 35% of the assessed patients, a need for an assistive device to be able to perform daily living activities in 32% of them, difficulty in ambulation in 23% and inadequacy in transfers in 7%^[5]. Despite the crucial need for physical activity and exercise in this patient population, patients' demand for physical treatment varied from 2% to 81%^[13]. It has been stressed that terminal cancer patients also have significant functional incapacity^[4,6]. Although emphasizing its importance date back to many years ago in the literature, utilization of these study results in clinical practice has not unfortunately reached the desired level.

Physical strength, time spent in bed during the day, ability to do something intended and being dependent on others are important factors for cancer patients and their

loved ones in terms of their quality of life. It is stressed in the literature that progressive disability and the feeling of being dependent on others are among the reasons that deplete the desire to live in cancer patients^[14,15]. In another study made in a nursing home with terminal-stage cancer patients, it was found that the desire to be physically active came first even during the last three days of life. In that study, 88% of the patients wished to have increased mobility and 50% of them complained about the problems in their daily living activities^[16].

Rehabilitation in cancer patients is very important in that it ensures maintenance of their functional capacity and particularly their mobility^[17,18]. Although cancer patients are in great need of physiotherapy and rehabilitation, this is often ignored by health professionals^[19,20]. For this reason, the role of physiotherapy and rehabilitation during palliative care in cancer patients is limited in both clinical practice and literature^[21]. Especially in terminal-stage cancer patients, we see assumptions that rehabilitation is useless with the underlying thought that death is approaching. On the contrary, patients we see in our clinical practice seem to have a desire for exercising even if they will be lost (death) in a day. Treatment approaches for protecting and restoring physical functioning particularly in patients with diminished life expectancy have started to appear in small numbers in the literature related to palliative care^[22]. Physical functions appear to be the major factor determining the length of life and quality of life^[22,23]. Although, the additional effect of exercise in palliative care has been investigated in numerous studies throughout the last decades, there have been no clear consensus or a standard approach yet.

EFFECT OF EXERCISE IN PALLIATIVE CARE

It has been found in recent studies that exercise has a positive effect on life expectancy in cancer patients during their palliative care^[22,24-26]. Prospective-observational studies have demonstrated that physical activity after cancer diagnosis is associated with a reduced risk of cancer recurrence and improved overall mortality among multiple cancer survivor groups, including breast, colorectal, prostate and ovarian cancer^[27]. In a multi-center, randomized and controlled study made by Courneya *et al*^[28], resistance and aerobic exercises were prescribed for 17 wk to 242 patients with breast cancer who had been started adjuvant chemotherapy. Although the exercises given did not affect the individuals' quality of life associated with cancer, they improved their physical conditions, body compositions and general well-being^[28]. There is increasing evidence that exercise therapy is beneficial during palliative care of cancer patients. Studies have reported that 30% of total cancer deaths are associated with lack of exercise and malnutrition and 250000 early deaths occur every year due to inactivity^[29,30].

Exercises have positive effects on energy use, insulin

resistance, inflammation, and on many tissues and organs. The cardiovascular capacities and quality of life of the cancer patients who exercise increase, their fatigue, sleeping problems, body structures and immune responses improve and therefore a general well-being occurs^[18,19,31-34]. Exercise has been shown to have positive effects not only on physical and functional condition but also on psychological symptoms in cancer patients^[35,36]. This positive effect on both physical and psychological symptoms may explain the increase in life expectancy in these patients.

QUALITY OF LIFE

Although quality of life decreases in patients with advanced cancer, this decrease is less in those who receive exercise therapy^[37]. There are only a few studies investigating the effect of rehabilitation in terminal-stage cancer patients. In one of those studies, 301 people who have been staying in a nursing home and who have exercised for 6 years were examined. They had an average of 27% improvement in their Barthel mobility indexes after their rehabilitation. Forty-nine patients gained their independence in their mobility and daily living activities^[11,12]. In the study of Porock *et al*^[38] where they investigated the effect of exercise on palliative care patients, fatigue, anxiety and quality of life improved in patients who received an exercise therapy for 28 d^[38]. In another study, fatigue and quality of life improved in patients who received an intensive exercise therapy for 6 wk^[22]. Montagnini *et al*^[39] also evidenced that exercising resulted in an improvement in the scores of the daily living activities scale in 56% of the palliative care patients within 2 wk^[39].

FATIGUE

Fatigue is a very frequently seen symptom in palliative care patients (80%-90%). Fatigue is argued as being associated with anxiety, depression, pain, dyspnea, insomnia, loss of appetite, nausea, and dizziness. It is an important symptom in that it affects daily living activities of people and lowers their quality of life. Exercising is known to have positive effects on fatigue^[40]. It is stressed that group exercises, energy protection techniques and regular physical activities are significant in reducing cancer-related fatigue^[41]. A 20-30 min daily progressive walking exercise program was administered 4-5 times a week to patients with breast cancer who were receiving radiotherapy and a decrease was seen in fatigue^[42]. A bicycle exercises program was administered for 30 min to 50% of the patients after bone marrow transplantation and fatigue and physiologic stress levels were found to be lower in the exercising group than in those who did not exercise^[43]. In a study where fatigue and its causes as well as the efficacy of rehabilitation were investigated, 32 cancer patients were included in a rehabilitation program consisting of aerobic and muscle strengthening exercises, sports activities and psychological support. After the rehabilitation activities which lasted fifteen weeks, improvement was

seen in physical parameters and a marked decrease in fatigue^[44]. There are not adequate data as to how exercise reduces fatigue or its role in decreasing cancer risk.

It should be borne in mind that aerobic exercises must be employed when fighting against fatigue in cancer patients. In many studies, light and moderate walking and bicycle exercises have been administered a few times a week to activate large muscle groups and to increase oxidative muscle fibers. In view of the data available to us, it can be said that a less intense exercise program should be administered to patients whose cancer treatment actively continues and more intense exercises can be prescribed to those whose cancer treatments have been completed.

MUSCLE MASS AND MUSCLE STRENGTH

Cancer cachexia is a multifactorial condition that cannot be fully reversed with conventional food supplements; it leads to progressive functional impairment and progresses with loss of muscle mass^[45]. There are very few treatment options for patients with advanced cancer. Loss of muscle mass and muscle strength in cancer cachexia results in unintentional weight loss. Due to the potential effect of exercising on muscle mass and muscle strength, exercise is recommended as a treatment method that can be chosen before and during cachexia in advanced cancer cases^[46-52]. In a meta-analysis that evaluated the effect of physical exercise on muscle mass and muscle strength during an active cancer treatment and that reviewed 16 studies, it was demonstrated that aerobic and resistance exercises administered during an active cancer treatment could prevent muscle mass loss^[53]. Therefore, exercise therapy in cancer patients is effective for patients in sustaining their daily living activities^[8,26,53].

Measuring muscle mass objectively requires experienced staff and expensive equipment. There is not a clear consensus about the dose and type of exercise that has to be performed for the recovery of muscle mass^[53]. For this reason, it is difficult to comment on the changes an exercise therapy makes in muscle mass. There is a need for further studies evaluating muscle strength in advanced cancer cases.

The importance of protecting and increasing muscle mass for daily living activities has been stressed. There are also studies on the positive effects of muscle strengthening exercises^[26,48,50-53].

TREATMENT PLAN AND COMPLIANCE

A rehabilitation program should be custom made. When planning the rehabilitation, disease location, its stage, previous and present treatments received by the patient, their previous functional condition, their life expectancy, comorbidities, pain, medications used, the patient's cognitive and emotional status, their nutrition, physical capacity and potential limitations should all be considered^[54]. The patient's neurological and musculoskeletal examinations

should be performed thoroughly and their motor deficits, range of motion (ROM), walking patterns and risk of falling should be inquired. Indications for the exercise treatment in this patient population include to regain or improve physical functions, aerobic capacity, strength, flexibility, body image, body composition, quality of life, ability to withstand physically and psychologically to any current and future cancer treatments and to withstand the anxiety associated with the current or recurrent disease^[55].

For example, while the main target is the restoration of arm and shoulder mobility in a patient who was administered a curative surgery due to breast cancer, mobility and daily living activities come first for a patient who had a hip metastasis associated with breast cancer and who developed a pathologic fracture. In rehabilitation, targets should be objective and realistic; education and psychosocial consultation facilities should be provided. The patient's family and loved ones should be active participants of the rehabilitation process.

Adherence to treatment in cancer patients and our efforts in this matter also become very important. Generally speaking, compliance of patients with the treatment is quite high. The reasons patients discontinue an exercise therapy include lack of interest in the therapy, medical complications, exercising time and intensity, program being too long, disease stage, and transportation problems. The intensity and length of the exercise program should be adjusted in a way not to tire or bore the patient especially when terminal-stage cancer patients are in question^[54].

When exercising with palliative care patients, the patient groups are kept small and there is no definite standard in treatment programs. This is why it is difficult to determine what type of exercise will be given to what patient group and how. There is no agreement about the type, frequency, intensity and length of exercises to be given to cancer patients, nor is there an agreement as to at what stage of the disease it should be given and how. The exercise types usually given are exercises performed by the patient in bed with the help of a caregiver, exercises performed by the patient alone in line with the directives given, exercises involving simple support devices and weights, strengthening and aerobic exercises such as walking and swimming. Patients often prefer walking and home exercising programs^[20].

A rehabilitation or exercise program which disregards the patient's general condition and in which expectations are kept high will make patient compliance difficult and will demoralize the patient. For example, it would certainly not be appropriate to give 2 tours of walking exercise in the corridor mornings and evenings to a patient who can only walk from the bed to the patient room door due to fatigue. To give only ROM and breathing exercises to a patient who can hardly move in bed will be more relaxing for both the patient and his/her family. Patient compliance is better when the patient is able to do and comply with the programs.

Workouts involving resistance exercises are usually

less common; the majority of workouts involve aerobic exercises^[31,56]. Resistance exercises increase muscle strength and overall body mass^[57]. Although there are data that resistance exercises are more effective in increasing muscle mass and muscle strength than aerobic exercises, there are no strong evidences yet^[28,53].

According to the data pooled from cancer studies, the American Cancer Society recommends cancer survivors to engage in regular physical activity avoiding inactivity, to exercise for at least 150 min per week including strength-training for at least 2 d per week and to keep a healthy weight^[27]. Joyful exercises like Pilates, Tai Chi, Yoga, Nordic walking and dance may be chosen according to the expectation and motivation of the patient by carefully adjusting the intensity to the abilities of the individual.

CONCLUSION

Exercise and rehabilitation approaches in palliative care programs for cancer patients affect patients' symptoms, functional capacities, quality of life and length of life positively. Studies for demonstrating the positive effects of exercising in palliative care patients are increasing in number day by day. Exercise in palliative care should definitely be considered since it is easily administered and safe and is beneficial for the patient. We, rehabilitation physicians, must certainly be a major part of this team, because patients can benefit from this facility only when they are directed to us. At this point, increasing awareness about exercising in the entire team monitoring the patient and our efforts in this matter seems to be very important.

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