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Literature Review

Effectiveness of Exercise to Reduce Cancer Related Fatigue: A Literature Review

Faisal Olimat[1], Mohammed ALBashtawy[2]*, Abdullah Alkhawaldeh[3], Omar Al Omari[4], Bayan ALBashtawy[5], Hasan Alkhawaldeh[6] and Sa'd Albashtawy[7]

[1]*Registered Nurse (RN), Princess Salma Faculty of Nursing, AL Al-Bayt University, Mafraq, Jordan*

[2]*Professor, Princess Salma Faculty of Nursing, AL Al-Bayt University, Mafraq, Jordan*

[3]*Assistant professor, Princess Salma Faculty of Nursing, AL Al-Bayt University, Mafraq, Jordan*

[4]*Associate Professor, Faculty of Nursing, Sultan Qaboos University, Muscat, Oman*

[5]*Medical Intern, King Abdullah University Hospital, Jordan*

[6]*Teacher Assistant, Department of Physical Therapy, Jordan University of Science and Technology, Irbid, Jordan*

[7]*Faculty of Medicine, Hashemite University, Zarqa, Jordan, Jordan*

***Corresponding Author:** Mohammed ALBashtawy, Professor, Princess Salma Faculty of Nursing, AL Al-Bayt University, Mafraq, Jordan.

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Abstract

Cancer-related fatigue (CRF) is one of the common symptoms among cancer patients. This paper aimed to review the most key literature regarding the effectiveness of exercise in reducing cancer-related fatigue. The search was achieved in Google Scholar and EBSCO electronic databases. Many past studies estimated the effectiveness of exercise on decreasing cancer-related symptoms, particularly cancer-related fatigue, besides the effect of different types of exercises to decrease the side effect of cancer treatment. The current review indicated that exercise (such as: aerobic exercises, Tai chi exercises, and yoga) plays an important role in decreasing CRF and enhance physical fitness.

Keywords: *Cancer-Related Fatigue; Physical Activity; Yoga; Tai Chi; Aerobic Exercise*

Introduction

Cancer-related fatigue (CRF) is one of the common symptoms among cancer patients [1]. This symptom is related to the disease itself, or it's treatment and decreases the physical activity of patients. Accordingly, encouraging patients to increase their physical activity using a different method such as the physiotherapy programs is an important component in the treatment and improving quality of life of cancer patients [1].

According to figures, about 80% of the cancer patients undergoing chemotherapy and radiation therapy complain of fatigue [2]. In patients with metastatic disease, the percentage of CRF go above 75%, range from moderate to severe fatigue, about 45% of outpatients had fatigue and 29% of patients experienced fatigue after they end their treatment [2].

The CRF is considered the most distressful symptom affecting cancer patients, while pain is the most common complain of health conditions, and the fearful side effect of cancer therapy [3-29]. The CRF influence physical, psychosocial, and occupational aspects for the cancer patients. It decreases level of energy and level of motivation, increase feeling of tiredness, sadness, irritability and frustration. Also, the CRF influence the cognitive aspects of cancer patients; it decreases concentration and disturb memory. Besides, it affects physical activity and productivities of cancer patients [3].

Aim of the Study

This paper aimed to review the most key literature regarding the effectiveness of exercise in reducing cancer-related fatigue.

Methods

Search methods

The search was achieved in Google Scholar and EBSCO electronic databases. The search keywords were: "Cancer-related Fatigue", "Physical Activity", "Yoga'','' Tai Chi" and "Aerobic Exercise''.

The studies included in the review were: (a) published in the English language, (b) published in 2014 and more, and (c) describe the adult cancer patients and cancer related fatigue. Studies involving other disease, letters and non-medical journal were excluded.

Search outcome

Searching of the literature resulted in 40 titles for review. The final examination resulted in 10 articles.

Results and Discussion

A lot of studies reported different methods to reduce CRF, but physical activity and exercise considered the most effective non pharmacological methods to reduce CRF during and after cancer treatment. Physical activity improves the muscle strength and body composition of cancer patients. Aerobic and resistance exercises recommended being a part of a rehabilitation program for a cancer patient [30].

Many studies were conducted about the effectiveness of exercise on decreasing cancer-related symptoms, particularly cancer-related fatigue, besides the effect of different types of exercises to decrease the side effect of cancer treatment. For example, a study aimed to evaluate the effect of aerobic exercises and resistance exercises on the level of fatigue on prostate cancer patients undergoing androgen deprivation therapy (ADT). The found that different types of exercises, moderate or high intensity (aerobic and resistance training) have the same results on decreasing levels of fatigue and enhance the vitality of 163 prostate cancer patients undergoing androgen deprivation therapy [31].

Another study evaluated the effect of high-intensity exercise and moderates to low-intensity exercise on the level of fatigue on cancer survivors in terms of physical fitness and fatigue levels. In this study, the sample was divided into three groups, high-intensity exercise group, low to the moderate intensity exercise group, and control group. Also, the exercises were fixed in terms of duration and type, just differed in intensity, for 12 weeks for interventional groups. The Multidimensional Fatigue Inventory (MDFI) was used to assess fatigue after exercise. The results reported increase level of (O_2) in patients in all groups, and also showed a decreased level of fatigue and increase the level of physical fitness in exercise groups compared with the control group [32].

Tai chi exercises also have a similar effect as aerobic and resistance exercises in decreasing CRF in lung cancer patients undergoing chemotherapy. A randomized controlled trial found this type of Chinese exercise decrease the level of general and physical fatigue in patients who practice this type of exercise is compared with the control group that received just low impact exercises [33]. While, another study used a randomized control trial design to evaluate the effect of yoga on decreasing anxiety, depression and CRF. The study sample was consisted of 60 women with breast cancer and were divided into an experimental group (30) and control group (30), the experimental group received sessions of yoga (60 minutes), twice per week for eight weeks, but control group not received like this session. The Yoga exercises included deep breathing, meditation, and muscles stretching. Two tools used in this study, the Profile of Mood State that assess depression and anxiety, and the Brief Fatigue Inventory. The results indicated that yoga exercises must be performed (8) weeks by breast cancer patients to make a significant difference in the level of fatigue. Nevertheless, these (8) weeks of intervention not significantly decrease levels of anxiety and depression ($P > 0.05$) in the experimental group [34].

Some other studies found vague findings regarding the effect of schedule exercise program on the side effects of treatment. A study was performed in a university hospital in Norway to evaluates the effectiveness of home-based exercise intervention on breast cancer patients undergoing chemotherapy, on CRF, physical fitness and activity level. The findings revealed no significant differences between the two groups regarding cancer-related fatigue, physical fitness, and activity level [35]. Finally, the effect of different types of exercises should be examined among different age groups, different settings and health conditions [36-70].

Conclusion

Cancer is a major health problem affecting people. CRF is one of the most signs and symptoms affecting cancer patients. Many past studies estimated the effectiveness of exercise on decreasing cancer-related symptoms, particularly cancer-related fatigue, besides the effect of different types of exercises to decrease the side effect of cancer treatment. The current review indicated that exercise (such as: aerobic exercises, Tai chi exercises, and yoga) plays an important role in decreasing CRF and enhance physical fitness.

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