

Journal of Cancer Research Forecast

The Effect of Physical Activity on Cancer Related Fatigue

Sangtarash N^{1*}, Mohammadimousavi M² and Sangtarash N³

¹Institute for Cognitive and Brain Sciences, Shahid Beheshti University, Tehran, Iran

²Faculty of Life Sciences and Biotechnology, Shahid Beheshti University, Tehran, Iran

³Department of Exercise Physiology, Islamic Azad University of Shoushtar, Iran

Abstract

Cancer Related Fatigue (CRF) is often reported as the most distressing symptom along with cancer and its treatment, even more than soreness, nausea or vomiting. Therefore, these symptoms can have a very negative effect on the quality of life and daily activities of patients. CRF is an abstract and multi-dimensional experience that affects 70-100% of the cancer patient population. Researches have shown that exercise is effective in reducing fatigue and improving tolerance in healthy and sick people. Exercise benefit may not be limited to improving the physical dimension of CRF. It can also relieve emotional and mental dimensions. In this review article, we have investigated this important side effect due to cancer and the effects of exercise on it.

Keywords: Cancer related fatigue; Central fatigue; Central fatigue syndrome; Physical activity; 5-Hydroxytryptamine; Peripheral fatigue

Introduction

In a healthy person, fatigue happens as an essential feeling that causes a desire to relax. This mechanism occurs to protect against excessive activity that can lead to permanent damage to tissues. Cancer-induced fatigue is different from the typical fatigue that most people experience in normal daily life. Unlike conventional fatigue, Cancer Fatigue (CRF) is disproportionate to the pressure rate and does not relieve with rest or sleep [1].

CRF is defined as a continuous and subjective fatigue sensation caused by cancer and its treatments that interact with the usual everyday functions of the individual [2]. CRF is very common so that its prevalence is estimated to be 60% and even 90% in some studies [3]. CRF is stable, meaning that it may continue when diagnosing, during treatment or even months or years after the treatment has been completed.

CRF has been highly considered in recent years. However, investigations on this issue have been limited. The data evaluation of previous studies was associated with changes in definitions and evaluation of fatigue and its prevalence. In 1996, the first large-scale, population-based study was conducted to describe the epidemiology of cancer-induced fatigue and its impact from the patients' point of view, primary caregivers and oncologist. The data from the full study confirmed that (1) fatigue is very common, (2) causes significant impairment in psychological function and (3) is discussed or treated [1].

CRF is often reported as the most distressing symptom along with cancer and its treatment, even more sore, nausea or vomiting. Therefore, these symptoms can have a very negative effect on the quality of life and daily activities of patients. Until recently, fatigue in cancer patients was unknown and considered because attention to other common symptoms such as nausea and pain has been reduced. In this paper, the hypotheses and evidences for CRF cause are investigated [4].

Fatigue is a very subjective multidimensional experience. Individuals may understand fatigue as physical fatigue, the need to reduce activity, reduce motivation or mental fatigue. Most of what is known about fatigue is related to physical fatigue because it relates to exercise and, in better words, muscle response. In general, physiological fatigue is defined as an inability to maintain manufacturing power, and is deemed to be a feeling of weakness - even when not used for muscle or feeling more effort to do a necessary task. In addition, fatigue includes psychological changes such as mental fatigue and decreased motivation. Mental fatigue can be expressed as a reduced capacity for attention, focus and learning as well as a short-term memory impairment [5].

CRF is an abstract and multi-dimensional experience that affects 70-100% of the cancer patient

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*Correspondence:

Sangtarash N, Institute for Cognitive Brain Sciences, Shahid Beheshti University, Tehran, Iran.

Tel: 98-902-161-1174

E-mail: nooshin.sangtarash1374@gmail.com

Received Date: 09 Aug 2020

Accepted Date: 17 Sep 2020

Published Date: 21 Sep 2020

Citation: Sangtarash N, Mohammadimousavi M, Sangtarash N. The Effect of Physical Activity on Cancer Related Fatigue. *J Cancer Res Forecast.* 2020; 3(1): 1022.

ISSN 2690-4179

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population. Physically, emotionally and mentally, it has a deep impact on individuals and can continue for months or even years after treatment. This can have a phenomenal effect on the patient's life and disrupt the daily activities of the patient [4,6]. It may also have potentially destructive social and economic consequences. This can be due to its effect on the desire to continue treatment, inhibit the possibility of repair or even recovery of the patient [3].

Types of Fatigue

Peripheral fatigue

This type of fatigue is caused by nerves and muscles. You will be very tired of doing physical activities and their recovery usually takes a little. Your muscles may feel heavy or weak. You may need frequent breaks and you may feel severe fatigue after work or exercise [7].

Central fatigue

This is caused by changes in the brain. It may cause you to have a cross-sectional poor memory. This type of fatigue may get worse with exercise or exercise, but it may even exist in situations where you are not physically active [7].

Central fatigue syndrome

It's sudden and severe exhaustion. It may take 60 minutes or more and usually occur during or immediately after the activity. Unlike other types of fatigue, it is usually limited. Patients with memory problems, finishing work or learning new things may be tired after reading and other nonphysical activities [7].

Basic mechanisms of cancer-induced fatigue

Fatigue in normal conditions (exercise) and chronic diseases such as chronic fatigue syndrome and rheumatoid arthritis has been investigated. However, there are limitations to the results of the extraversion of these studies to CRF because various etiologic factors are likely involved.

HT levels and central fatigue

Exercise increases tryptophan concentration in the brain, which increases 5-HT(5-Hydroxytryptamine) synthesis by some neurons. Increasing 5-HT concentration can cause physical and mental fatigue during long-term exercise [8]. Studies in patients with chronic fatigue syndrome have shown that free tryptophan plasma levels increase, which could potentially lead to central 5-HT levels. Animal studies have shown that stable exercise increases 5-HT in the hypothalamus and brainstem. However, areas where 5-HT has increased in humans during exercise have not been found accurately [8,9].

CRF probably has an organic etiology. The effect of treatment and decreased physical activity can lead to decreased physical functional. Therefore, the patient needs more effort to perform normal daily activities, leading to a perception of fatigue. This is further exacerbated by impaired skeletal muscle function and exacerbated by activity deficiency [10].

Researches have shown that exercise is effective in reducing fatigue and improving tolerance in healthy and sick people [7]. It has been suggested that changes due to physical activity may neutralize the negative effects of tumors and toxic treatment on physical function

capacity. Activity can reduce CRF. Also, the balance between rest and activity can reduce CRF, while imbalances can lead to deteriorating and indicate that exercise of little or high may exacerbate CRF [11].

Exercise benefit may not be limited to improving the physical dimension of CRF. It can also relieve emotional and mental dimensions. Exercise has been shown to improve mood and reduce anxiety and fear in cancer patients [7].

Conclusion

Nowadays, the effect of exercise on cancer fatigue is known as a side effect of cancer and its treatment. In the past, people with cancer were encouraged to relax if they felt tired. It is important that people with cancer receive appropriate help and advice to help them cope with any side effects. To reduce cancer-induced fatigue, physical exercises have been helped. Some studies have been conducted to evaluate the effects of exercise during and after treatment. The present study was conducted to investigate the effect of physical exercise on cancer fatigue. Twenty-eight studies were included in the study. The results indicate that physical exercise can help to reduce fatigue during and after cancer treatment. However, the evidence to show the best type or intensity of exercise is not enough to reduce symptoms of fatigue [11].

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