EDITORIAL

Exercise for the Cancer Patient

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BACKGROUND

Exercise is Medicine® is the concept initiated by Jim Sallis to promote the major role that exercise has in the prevention and treatment of chronic diseases of lifestyle.[1] In certain cases, exercise as therapy can be just as effective as medical treatment, and in special situations even more effective.[2] Chronic diseases of lifestyle are often as a result of lifestyle choices that individuals make and the influence of the environment that we life and work in. Cancer is one of these diseases that are influenced by both the environment and the lifestyle choices made. Lifestyle choices include decisions about stress, dietary intake and physical activity.

Cancer is a disease that is in general characterised by a larger weight-loss, loss of muscle mass, fatigue and reduced physical functioning. This reduction in physical functioning is as a result of a reduction in fitness which may lead to muscle atrophy. Fitness is reduced because physical activity is usually reduced due to the person feeling sick, having a poor appetite and the consequences of the treatment regimes followed. The treatment that cancer patients are subjected to, often make patients more susceptible to infections. The consequence of an infection is a further reduction in physical activity with the resulting loss of muscle mass. The reduced muscle mass again reduces functionality of the patient. As the majority of cancer patients are often of the older age categories, maintenance of functionality is of the utmost importance to ensure that persons stay self reliable as long as possible.

The poor physical conditioning of the cancer patients can be ascribed to physical inactivity in a third of the patients.[3] Physical activity is often related to the functioning and quality of life of the patient. This has lead to more and more researchers investigating the role of physical activity related to the quality of life of the cancer patient.[4-6]

Evidence for exercise as therapy

The higher the levels of physical

activity, the lower the overall cancer mortality rate is. A study by Thune and Furberg[7] indicated that physical activity can reduce the risk of colon cancer by 30%. In a study performed on nurses diagnosed with breast cancer, Holmes et al.,[8] found that nurses participating in 3 – 5 days/week of moderate intensity exercise experienced the most benefit from the exercise than those participating less than three times per week in physical activity or structured exercise. A small additional advantage was found when participants performed at a higher intensity.

No evidence are however available for exercise as therapy in the progression and prognosis of the cancer. Evidence that is available on the advantages of physical activity on the general functioning of persons with cancer indicated that exercise will improve functionality.[9] Once functionality is restored the fitness will improve, which will assist in the improvements of the muscle strength, physical well-being, anxiety, depression and the overall quality of life.

Physical activity intervention studies indicate a reduction in breast and colon cancers. These intervention studies indicate that fitness improved, muscle strength improved, a healthy weight loss was observed and nausea and vomiting were also reduced.[10,11] A six month aerobic intervention resulted in an improved fitness and physical functioning.[12] When part of the cancer treatment involves surgery, patients that are submitted to hospital, are bound to their beds with very limited physical activity. This lack of movement again leads to the downward spiral effect of a loss of functionality as physical activity is reduced.

Exercise prescription for cancer patients is therefore very important. The main objective of prescribing exercise programmes for cancer patients, are to consider the treatment that the patient is receiving and the white blood cell count.

Prescribing exercise

In order to prescribe exercise to cancer patients, it is necessary to perform an assessment of the functional capacity and baseline fitness. The evaluation serves as a guide for the prescription of exercises. Each exercise prescription is individualised, should be supervised and include cardio-respiratory, muscle endurance and strength training as well as flexibility exercises. Evidence for an exercise intervention during chemotherapy or radiation therapy is very limited. Common sense should prevail and the rehabilitation plan should include exercises to preserve the mobility and functioning of the patient. The following contraindications should be stressed when the patient is receiving chemotherapy and/or radiotherapy. In the case of leukocyte concentration < 0.5 X109/L, haemoglobin concentration < 6 mmol/L, thrombocyte concentration 20 X 109/L and body temperature $> 38°C$ the patient should not exercise.[13] In the presence of an infection no exercises should be performed and in the presence of bone metastases, no strength conditioning at high loads should be performed.

For exercise prescription the intensity, frequency, duration and specificity of the exercises should always be addressed. Exercising in the cancer patient should always start out at a very low intensity such as walking for 20 minutes, 2 days/week at an intensity of 30 – 45 percent of the patients' maximal functional capacity as determined during the baseline assessment. The duration of the activity can then be gradually increased to 60 minutes, 5 – 7 days/week with a gradual increase in the intensity to 60 – 70 percent of maximal functional capacity. These optimal training will only be reached over a six month period of regular exercising.

Depending on the functionality of the patient, muscle strength and endurance exercise should also be included in an exercise program. These exercises can include activities of daily living such as standing out of a chair repeatedly of picking up an object. Patients can start with 6 – 8 repetitions of an activity loading the muscle at least 2 days/week.

Flexibility in cancer patients should not be neglected. During the process of ageing the structures such as the muscles and tendons lose elasticity. In breast cancer patients that has had reconstruction surgery, as loss of flexibility in the shoulder joint are often found. Through regular stretching mobility of the joints are improved which increase the functionality of the patient.

Summary

Exercise may prevent such cancers as breast and colon cancer, but in the majority of cancers regular exercise are indicated to improve the functionality of cancer patients through the improvement of muscle strength and endurance and the improvement of fitness. These improvements have also resulted in an adaptation in the physiological responses in most patients resulting in an improvement in the toleration of the nausea and

vomiting that are often associated in chemotherapy. Where nausea and vomiting are better tolerated during chemotherapy, the patient often experience an improvement in the quality of life, experience less depression and can cope with the disease with a positive mind set. Oncologist should motivate cancer patients to introduce an exercise regime as complementary therapy to their cancer patients.

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