

Review Article

Physiotherapy as a Supportive Form of Renal Cancer Management: A Short Narrative Review

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Abstract

In recent years, physiotherapy has become an intrinsic element of the basic treatment of many diseases, including cancer. It can serve as a preparatory element before main treatment, provide support after surgery, and alleviate the long-term effects of cancer and its treatment. Physiotherapy interventions bring many tangible benefits, increasing the effectiveness of treatment and improving patients' functioning and health-related quality of life. People suffering from renal cancer are one such group of patients for whom physiotherapy can facilitate faster recovery and alleviate the side effects of treatment. Since physiotherapy in its current form is still a young field of medicine, the amount of literature that directly concerns physiotherapy management among renal cancer patients remains limited. This article aims to discuss the application of selected physiotherapy interventions in the group of patients with kidney cancer. However, due to the lack of a sufficient number of studies assessing the impact of methods of physiotherapy among renal cancer patients specifically, it was decided to provide information on physiotherapy in general oncology and surgery.

Keywords: Physiotherapy; Prehabilitation; Rehabilitation; Renal cancer; Quality of life

Introduction

A modern approach to the treatment of many diseases, including neoplasm diseases, requires healthcare systems to create conditions for the formation of therapeutic teams composed of representatives of

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many medical specialties [1,2]. In recent years, physiotherapy, which is also developing in areas such as oncology and surgery, has been garnering more and more interest. Physiotherapy for cancer patients is implemented at every stage of the progression of the disease, regardless of the primary treatment adopted. Physiotherapy interventions focus on increasing the effectiveness of treatment, reducing the severity of side effects, and improving patients' health-related quality of life [3].

Kidney cancer is among the ten most common cancers among adult women and men [4]. Therefore, there is a large group of people who, due to the course of the disease and treatment, require appropriate physiotherapy methods in order to recover or at least achieve the highest possible level of functioning.

This article aims to present, based on the available literature, the possibilities of using methods and means of physiotherapy among people suffering from kidney cancer. Bearing in mind the small number of studies evaluating physiotherapy interventions in the population of patients with kidney cancer, it was decided to draw information also from papers on physiotherapy in general oncology and surgery.

Physiotherapy as a part of cancer surgery prehabilitation

Prehabilitation is a group of interventions whose purpose is to decrease postoperative complications, shorten hospitalization, and increase the effectiveness of surgery. It includes pre-operation nutritional education, anesthetic care, prophylaxis of thrombotic and respiratory tract infections, and pain control [1]. One of the key elements of prehabilitation is the improvement of the patient's functional state (i.e. improvement of cardiovascular and respiratory capacity, muscle strength, and mobility) in order to reduce the risk of perioperative complications and length of hospitalization [2-4]. In this area, physiotherapy plays a key role, as appropriate physiotherapy interventions are selected by means of functional tests [5]. Table 1 presents the most frequently performed physiotherapeutic activities before surgery, selected depending on the disorders in question [6-11].

Physiotherapists can also have a role in educating patients intensively before surgery. Educational activities should be carried out simultaneously in several key areas. The first of these is the motivational area, wherein patients are presented with the benefits of regular physical activity and a healthy lifestyle (e.g. adopting a healthy diet, giving up smoking) [12]. Subsequently, patients should be prepared for their physical condition in the first days after surgery [13]. Education in how to change body position safely, stand up as quickly as possible, and walk with a surgical wound is essential in helping patients to recover more speedily and avoid the effects of prolonged immobilization [3,7].

Physiotherapy in the early postoperative period

Surgical procedures are commonly associated with a significant reduction in physical and psychosocial functioning, which in turn leads to a decrease in health-related quality of life and a reduced sense of independence among cancer patients [1,2,5]. Periods of immobilization after surgery must be kept as short as possible in order to

Disorder	Physiotherapy Intervention
Decrease in cardiopulmonary fitness	Aerobic training Strength training Breathing exercises Patient education
Decrease in muscle strength	Strength training Patient education
Limited joint mobility	Flexibility exercises Manual therapy Myofascial therapy Thermotherapy Patient education
Urinary/fecal incontinence	Pelvic floor muscle training Manual therapy Myofascial therapy Electrotherapy of pelvic floor muscles Patient education
Low bone density	Strength training Stabilization training Balance exercises Patient education
Cancer-related fatigue	Aerobic training Strength training Myofascial therapy Relaxation training Patient education

Table 1: Examples of physiotherapy interventions before surgery.

reduce the risk of adverse effects related to a significant decrease in physical activity [3]. Therefore, physiotherapeutic interventions undertaken in the early postoperative period are aimed at eliminating such effects (Table 2) [3,6,11].

Side Effect of Immobilization	Physiotherapy Intervention
Chest immobility	Breathing exercises Manual therapy Myofascial release Positioning Patient education
Pulmonary complications	Aerobic training Breathing exercises Positioning Patient education
Weakening of muscle strength	Strength exercises Patient education
Deep vein thrombosis	Anticoagulant exercises Aerobic training Positioning Compression products Patient education
Lower limb edema	Aerobic training Manual lymph drainage Positioning Compression products Patient education

Table 2: Examples of physiotherapy interventions in early postoperative phase.

Although there are no protocols for the implementation of physiotherapy interventions in the postoperative period, early patient mobilization is now becoming a standard aspect of care [1,14]. The benefits of an early mobilization program among 108 patients after abdominal cancer surgery were assessed by de Almeida et al. The

program included isotonic and isometric training, stabilization exercises, and gait training-as compared with standard rehabilitation care for the control group. The program was performed over the five days following surgery, two times per day for 30 minutes. The results showed that the early mobilization program increased patients' health-related quality of life ($p < 0.001$) and decreased fatigue ($p < 0.05$) [15]. A further study, by Tabaczynski et al., on a group of 463 people who had suffered from kidney cancer showed that the introduction of ten minutes of moderate-to-vigorous physical activity per day significantly reduced the severity of fatigue ($p = 0.02$; $p = 0.03$) and improved general functioning ($p = 0.02$) [16]. Moreover, results of a study conducted by Trinh et al. showed, in a group of 703 renal cancer survivors, that training consisting of a combination of aerobic and strength exercises had a positive effect on quality of life [17].

Conclusion

Despite the scarcity of relevant studies on physiotherapy methods, including physical activity, among kidney cancer patients, some conclusions can be drawn based on the available literature:

1. Physiotherapy helps to prepare renal cancer patients for surgery and its consequences, reducing the risk of postoperative complications and shorting the time of hospitalization after surgery.
2. The side effects of immobilization can be reduced by means of early postoperative physiotherapy management.

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