Enhanced Recovery After Surgery in Oncologic Patients: The Role of the Physiotherapist

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Aceleração da Recuperação Pós-operatória em Pacientes Oncológicos: O Papel do Fisioterapeuta

Aceleración de la Recuperación Postoperatoria en Pacientes Oncológicos: El Papel del Fisioterapeuta

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INTRODUCTION

In 2020, 19.3 million new cases of cancer were estimated worldwide, with about 10 million deaths (respectively 18.1 and 9.9 million, excluding non-melanoma skin cancers)[1]. In Brazil, the expectation is that there will be 704,000 new cases of cancer for each year of the 2023-2025 triennium, with 220,000 non-melanoma skin cancers, 74,000 of the breasts, 72,000 of the prostates, 46,000 of the colon and rectum, 32,000 of the lung and 21,000 of the stomach among the most incidents[2].

With the increase in the worldwide incidence of cancer, the number of patients who are hospitalized for cancer surgery has also increased[3]. Multimodal care to reduce surgical stress occurs with the acceleration of patient recovery, and consequent reduction in the length of stay, increased satisfaction, and greater safety after hospital discharge[4]. To implement this strategy for optimizing pre-, peri- and post-operative care, known as *fast-track*, it is necessary to involve an interprofessional team, consisting of surgeons, anesthesiologists, nurses, nutritionists, psychologists and physiotherapists[5,6].

The physiotherapist, therefore, is an essential member of the health teams that provide care to surgical patients[7]. Thus, the objective of this work is to discuss the bases of protocols to accelerate postoperative recovery in cancer patients and the role of the physiotherapist within the team. Initially, the concepts of postoperative recovery acceleration protocols will be discussed, in general and in oncology. Next, emphasis will be given to two items of these protocols in which the physiotherapist plays a greater role – pre-habilitation and early mobilization.

DEVELOPMENT

ACCELERATION OF POSTOPERATIVE RECOVERY

Measures to optimize recovery after elective surgeries have been studied since the 1990s, when the concept of fast-track, surgery emerged. From that time on, there was evidence that patient education, the institution of new lines of analgesics and anesthetics, the adoption of less invasive surgeries and procedures, the intention to reduce the response to surgical stress and the search to minimize pain and discomfort, associated with the institution of oral nutrition and physical rehabilitation, could reduce the time required for hospitalization and improve convalescence[5].

In 2001, the Enhanced Recovery After Surgery Group (ERAS) was created, formed collaboratively by specialized professionals from university institutions of surgery departments in five Northern European countries (Scotland, Sweden, Denmark, Norway and the Netherlands), based on a multidisciplinary approach to reduce surgery-related stress, focusing on the faster return of functions after major surgical procedures[8]. The ERAS society was founded in 2010 and, since then, several ERAS guidelines and protocols have been developed on various surgical specialties, with the objective of reducing hospitalization time and reducing costs, in addition to minimizing the risk of postoperative complications and readmissions[9,10].

The ERAS protocols consist of a series of pre-, peri- and post-operative measures[6,11,12]:

- prehabilitation: drug optimization, cessation or reduction of alcohol and tobacco consumption, nutritional optimization, psychic assistance for understanding and coping with the disease and treatments, improvement of physical conditioning, and functional improvement of regions related to the surgical site.
- preoperative: patient counseling, failure to perform colon preparation, abbreviation of fasting, avoidance of fluids, antibiotic prophylaxis and thromboprophylaxis.
- intraoperative: minimum necessary use of anesthetics and analgesics, as minimally invasive surgery as possible, normothermia, as few invasive devices as possible, avoid fluid and electrolyte overload.

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- postoperative period: early reintroduction of feeding, prophylaxis for nausea and vomiting, thromboprophylaxis, adequate analgesia, avoidance of opioids, early removal of drains, catheters and probes, avoidance of fluid overload and audit, and ultra-early mobilization.

The Acerto Project (acceleration of total postoperative recovery) is a multimodal perioperative care protocol created in Brazil in 2005, built to adapt to the epidemiological reality of Latin America. It follows the same line of ERAS, in pre-, peri- and postoperative management, having as elements: information and pre-habilitation, abbreviation of fasting and early reintroduction of feeding, adequate prophylaxis and correct management of symptoms, reduction of fluids and non-preparation of the colon, minimally invasive procedures and early mobilization[13].

In this context, interdisciplinary action is essential. The medical team, of surgeons and anesthesiologists, must be aligned with nurses, nutritionists, psychologists, and physiotherapists to provide the best possible care, according to what is recommended in the literature, for decision making focused on optimizing the recovery of the surgical patient.

ERAS IN ONCOLOGY

Several factors of the peri cirurgical period can influence early and late clinical outcomes in cancer patients, including cancer recurrence. Inflammatory stress and reduced immunity related to surgery can be minimized by instituting protocols to accelerate postoperative recovery. ERAs elements such as minimally invasive surgeries, maintenance of normothermia, pain control and abbreviation of preoperative fasting contribute to reduce metabolic responses to stress[14].

The person with cancer, because of tumor metabolism or neoadjuvant therapies, may have a higher nutritional risk and functional impairment after surgery. Malnutrition in patients undergoing surgery for cancer is high and is associated with higher mortality in the first 30 days after surgery, which indicates the need for nutritional adequacy of these patients. The performance of pre-habilitation with physical exercises and early mobilization after surgical procedure are practices that should be encouraged to improve functional capacity, with the objective of reducing the occurrence of postoperative complications[14].

Cancer treatment is usually multimodal, and surgery and adjuvant therapies may be indicated. Accelerating the postoperative recovery of cancer patients allows adjuvant treatments, such as radiotherapy and/or chemotherapy, to be performed within the most effective therapeutic window[15]. The delay in cancer treatment due to surgical complications and/or weakness of the person with cancer who has undergone surgery can impact the risk of recurrence and survival, and the physiotherapist is one of the essential professionals who work in the pre-habilitation, prevention and treatment of complications related to the surgical treatment of cancer that could occur with delay or impossibility of institution of adjuvant therapies.

Prehabilitation

Prehabilitation is a set of multimodal actions aimed at improving clinical, nutritional, emotional, and physical fitness in the preoperative period, for a better postoperative recovery. Ideally, it should involve several health professionals, in the following aspects[3,12,16,17]:

- Modification of risk factors: guidance and reception for cessation/reduction of alcohol and tobacco consumption, medication adequacy and clinical control of comorbidities.
- Nutritional optimization: Nutritional screening through individual assessment and, if necessary, counseling on healthy eating, glycemic control, and supplementation.
- Stress reduction: psychological counseling to cope with the diagnosis and treatments, as well as management of symptoms such as anxiety and depression.
- General physical exercise: improvement of cardiovascular conditioning with aerobic exercises, resistance exercises, stretching, balance training and respiratory training.
- Exercises for the target region: motor skills for regions of the body that may have functional loss in surgery, for example, improvement of upper limb functionality for women who will undergo breast cancer surgery.

Preoperative functional capacity is an important predictor of clinical outcomes, so the goal of the physiotherapist will be to increase functional reserve before surgery, leading to better postoperative functional recovery and a reduced incidence of complications[12]. What in theory seems easy becomes difficult in practice due to several barriers, financial and institutional, to the establishment of prehabilitation exercise programs for people diagnosed with cancer. For strategic planning of the institution of pre-qualification with exercises, it is important to initially identify in each oncology service the expected time between diagnosis and surgery, for example, as described by researchers from the National Cancer Institute (INCA), where women with breast cancer wait, on average, 63 days for surgery since diagnosis[18].

The definition of the guidelines and conducts to be carried out with each patient will depend on a careful

evaluation by the physiotherapist, containing a good anamnesis and investigation of cardiovascular capacity, respiratory function, muscle strength, range of motion, sensitivity, functionality, urination and evacuation habits, posture and balance. Questionnaires to investigate quality of life, sexual function, level of physical activity, among others, can also be used. Thus, patients can be stratified into different levels of risk for functional deficit and complications, for each of which a different proposal will be instituted, for example: guidance on the continuity of healthy habits for low-risk patients, unsupervised exercise guidance for people at intermediate risk and qualification with exercises supervised by a physiotherapist for high-risk patients[15].

Knowing that there will be a functional decline in the postoperative period, the objective of prehabilitation exercises will be to increase the patient's functionality so that, when there is postoperative functional worsening, it does not reach levels much lower than those the patient had at the time of cancer diagnosis, thus providing a better and faster recovery (Figure 1).

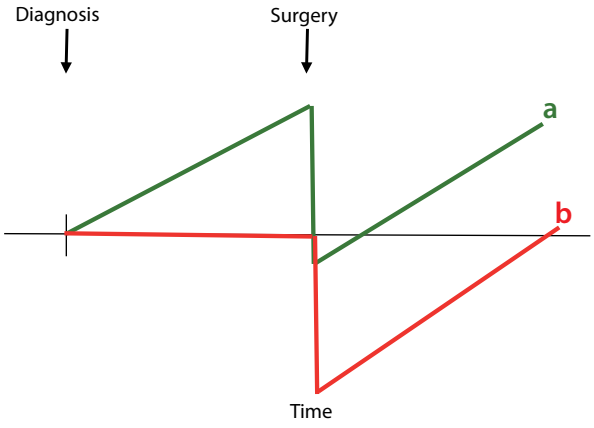

Figure 1. Prehabilitation concept. a) Increased preoperative functionality in patients who undergo exercise-based prehabilitation, for better postoperative recovery and faster restoration of functionality to levels similar to the time of diagnosis; b) in patients who do not undergo pre-habitation, the same postoperative functional worsening occurs with greater debility in relation to the time of diagnosis and longer recovery time

Early Mobilization

The restriction of the surgical patient to the bed causes a reduction in insulin resistance, loss of muscle mass, restriction of thoracic expansion, reduction of intestinal motility and greater risk of thrombo embolic events[8]. It is recommended that the patient be mobilized in the first 24 hours after surgery and should be out of bed for two hours on that first day and, thereafter, for at least six hours. Some protocols recommend that the patient should be encouraged to walk from six hours after the end of the surgical procedure[7,8].

Once patients achieve significant mobilization, the physiotherapist can progress the exercises in a structured and progressive way, aiming at gaining muscle mass and recovering functionality in order to facilitate the transition to recovery at home[19]. The contact of the physiotherapist with the patient before surgery is related to greater adherence to the exercises proposed in the postoperative period. A structured mobilization protocol, conducted by physiotherapists, provides, in addition to the patient leaving the bed faster, that he walks for longer distances, which even impacts on the reduction of hospitalization time[7].

Although ERAS protocols focus on exercise-based rehabilitation, it is important to emphasize that the physiotherapist has several other resources that can facilitate the recovery of the surgical patient, such as thermotherapy, electrotherapy, manual therapies and photobiomodulation, which can be used for pain relief and/or healing. Urinary retention is a sequel that can appear after surgeries for some types of pelvic cancers, and there is some evidence of management of this early complication with the use of electrotherapy with neuro modulation parameters[20].

Some factors may characterize barriers to early mobilization, including delirium, early surgical complications, need for surgical reintervention, advanced age, low functional status, malnutrition, presence of tubes and drains, uncontrolled pain, nausea and vomiting[19]. The presence of the physiotherapist, in turn, is a facilitating factor for the patient to mobilize early[21]. However, the work of the physiotherapist depends on the partnership with the rest of the team since the conduct of each professional interferes with that of the others. For example, abbreviation of fasting, early reintroduction of feeding, prophylaxis for gastrointestinal symptoms and adequate pain management are essential for the patient to be able to leave the bed early, because, with nausea and vomiting and/or pain, the patient can hardly settle and walk. When, in turn, the physiotherapist mobilizes the patient, it stimulates gastric movements, further reducing the risk of the patient presenting nausea and vomiting. If any of the team members do not follow the recommendations, the patient is at risk of entering a cycle of vomiting *versus* immobilism *versus* vomiting, which may progress to severe ileo paralytic or metabolic conditions.

Other barriers described are the lack of knowledge of professionals about the importance of early mobilization (especially of the clinical team), insufficient staff to demand care, and lack of communication between surgeons, nurses and physiotherapists[21]. Thus, the education of clinical teams, including in the Intensive Care Units (ICU), is extremely important. The physiotherapist who works in surgical units, with expertise in postoperative recovery

acceleration programs, has an essential role in training colleagues who work in intensive care units, who, despite being used to mobilizing the critically ill patient, may not have the same vision of the need to mobilize the patient in the immediate postoperative period, a fact aggravated by the distance of contact with the surgical team.

Early mobilization in cancer patients is essential to enable the continuity of cancer treatment in the recommended time for the initiation of adjuvant therapies after surgery. Early mobilization can be understood as a prequalification for the therapies indicated below, because, by aiming for the patient to recover as best and as soon as possible after surgery, when starting adjuvant treatment, he will be better able to deal with the sequelae arising from these therapies. A patient who is debilitated after surgery and starts other cancer treatments without having yet recovered will suffer from the sum of the side effects of different procedures, which will impact their recovery and their final functional recovery. Accelerating the recovery of the person with cancer at all stages of treatment is essential for the patient to be as functional as possible and able to perform physical exercises – important for controlling symptoms related to treatment, preventing relapse and increasing overall survival[22].

CONCLUSION

The protocols for accelerating postoperative recovery involve multimodal actions in the pre-, peri- and postoperative periods, with the interprofessional team of which the physiotherapist is part. In people with cancer, speeding up the physical and functional restoration of the patient after surgery is even more important, in order to make the patient able to perform adjuvant therapies within the recommended therapeutic window. Among the aspects of these protocols, the physiotherapist has a great role, especially in pre-habilitation and early mobilization after surgery.

CONTRIBUTION

Samantha Karlla Lopes de Almeida Rizzi participated in all stages of the construction of the article, from its conception to the approval of the final version to be published.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interest to declare.

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