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Physiotherapy in oncological patients after surgical procedures - a proposal of the procedure

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Summary

Physiotherapy of post-surgical patients is still an overlooked topic in the medical field. There is a shortage of educated medical personnel in hospitals, and the lack of employment requirements in the surgery department of physiotherapists results in neglecting this part of health care.

Physiotherapy in surgical patients should be implemented already before the surgery. The available scientific reports show that greater mobility before the surgery has a positive effect on the surgical procedure by reducing postoperative complications. The literature review also shows that people with normal body weight have fewer complications after surgery and their recovery time is shorter, which has a positive effect on the patient's mental sphere.

Post-operative depression is less common in people who returned to everyday activities after surgery on day 2.

After analyzing the existing literature, it can be concluded that the level of fitness before the surgery has a significant impact on the level of reduction in the mobility of the patient after the surgery. In order to increase the level of the patient's fitness, it should be improved before the surgery. In addition, the patient should be instructed before the procedure about the necessity and manner of exercise, so that after the surgery, from the first day, you can experience physical therapy.

Key words: rehabilitation, surgery, disability

1. Introduction

Surgical procedures are performed every day in every hospital. Operation, surgery, surgery with such nomenclature can be found in all kinds of treatments on organs and tissues of the body, aimed at improving the health and well-being of the patient, or diagnostic procedures carried out in this way. Contrary to the name, surgical procedures are not the sole competence of surgeons. Places intended for performing surgical procedures are operating blocks (rooms). (Głuszek S. 2019)

Operations are divided according to medical specialties and intra-surgical specialties, hence we have gynecological, ophthalmic and orthopedic operations.

Due to the duration of the operation, the division is as follows:

- Emergency, emergency surgery - perform the procedure for the immediate effect of eliminating the symptoms, otherwise there is a significant deterioration in health, including its risk
- Urgent surgery, the procedure must be performed within a few days of the onset of symptoms.

- Planned surgery - a procedure performed when there is no need to perform it immediately. It is held on a fixed date within weeks of the month or year. Ze względu na cel i wynik operacji możemy wyróżnić:
- Reconnaissance (diagnostic) surgery, a procedure that aims to identify a disease, not to cure it.
- A radical (complete) surgery, a procedure aimed at the complete cure of the disease, most often involving a wide excision of organs or a large part of a single organ.
- Palliative (soothing) surgery only improves the patient's condition without removing the actual cause of the ailments.
- Plastic surgery changes the appearance or function of an organ [4]

The statistical data show that the most common surgical procedures are planned operations [5], therefore the patient can prepare for it properly before the procedure is performed.

2. Description of the issue

The aim of this study is to propose a protocol for the treatment of a patient undergoing elective surgery, as well as procedures for emergency and urgent surgery.

Physiotherapy in patients undergoing surgery is an overlooked topic. A significant complication after surgery is akinesia, i.e. immobility, which contributes to the complications of surgery.

In addition, immobility contributes to the deterioration of the patient's mental state, which is associated with the occurrence of depression and post-traumatic stress disorder.

3. Literature review

The available literature discusses complications related to surgical procedures very widely. The general risk factors for complications in patients treated with surgery include:

- decrease in activity or immobilization in the preoperative period
- surgery, drugs used during anesthesia
- postoperative pain
- immobilization in the postoperative period [8]

The most dangerous consequences of the procedure and the related immobilization are disturbances in the mobility of the chest. It is caused by the lying position on the back and the force of gravity on the chest. Additionally, if the surgery concerned the chest, it is also associated with pain in the area of the surgical wound. The consequence is the weakening of the cough reflex or its ineffectiveness, and as a consequence, disturbances in diaphragm movements, the consequence of which is a general impairment of lung ventilation [2]

Pulmonary complications are the most common complications after surgery, regardless of the site of surgery. Respiratory complications concern 16-25% of patients treated surgically. Patients who have undergone procedures in the thoracic and epigastric areas are particularly at risk [7]

Another complication related to the procedure and immobility is the intensification of catabolism as a consequence of the surgical trauma. Metabolism focuses on repairing damage at the expense of the entire system, additionally limited nutrient supply causes catabolic effects. The effect of catabolism is a reduction in the mass of muscle tissue (about 300 g / day) and adipose tissue (300-500 g / day) [6]

The consequence of catabolism is also the weakening of muscle strength, and the related change in the structure of the muscle and the transformation of type II into type I. In addition, the activity of the coagulation system increases, which carries the risk of venous thrombosis [3].

Deep vein thrombosis (most often localized in the lower extremities) is another consequence of immobilization mentioned in the literature. Its consequence may be pulmonary embolism, it affects 25-50% of patients, and in nearly half of the cases it is asymptomatic.

Other frequently mentioned complications include:

- Hypovolemic shock (rapid loss of body fluid)
- Cardiogenic shock (myocardial infarction)
- Septic shock (systemic infection, SIRS) [3]

The following are mentioned in the literature as factors predisposing to the development of operational complications:

- Patient's age (over 60 - increased risk of pulmonary complications, already over 40 - increased risk of thromboembolic complications)
- Obesity (impaired mobility of the diaphragm, disturbance of the ratio of perfusion to ventilation in the alveoli: perfusion predominates over ventilation in the apical parts of the lungs and the opposite ratio in parabasal parts)
- Congenital and acquired defects that impair the mobility of the chest (scoliosis, kyphoscoliosis)
- Comorbidities (arterial hypertension, ischemic heart disease, pulmonary diseases, varicose veins of the lower extremities, neurological diseases)
- Smoking (impaired bronchial epithelium, decreased neutrophil chemotaxis, chronic bronchitis) [4]

Among the analyzed literature in recent years, it is possible to notice the psychological sphere of the patient. A surgical procedure, especially planned, is associated with stress, which adversely affects the patient's psyche and attitude. The feelings that patients experience before the procedure include:

- Uncertainty
- Fear
- Fear of not waking up

All the feelings mentioned by the authors adversely affect the nervous system, which produces hormones involved in the treatment processes.

Depression associated with surgery is often mentioned in the literature [2]

Most of the literature has doubts as to the method of examining patients with symptoms of depression using questionnaires. Depression as a mute disease can only be diagnosed on the basis of a questionnaire or self-assessment. As a result, it is also difficult to determine the incidence of minor and major depression, and sometimes even to distinguish anxiety or PTSD disorders from depressive disorders. Of course, diagnostic problems result in difficulties in assessing the effectiveness of treatment methods [7].

More accurate studies assessing cognitive-behavioral therapy and various methods of broadly understood cardiac rehabilitation also give more unambiguous results, indicating good effectiveness of these methods [7]

Due to the serious negative impact of depression on the health of patients after surgery and the frequent occurrence of mood disorders in this group of patients, a management protocol for the prevention and treatment of depression should be implemented.

Studies on the effect of therapeutic rehabilitation in patients after surgery are rarely found in the literature. As it is known, akinesia is the main cause of the remaining complications, therefore it should be obvious to implement patient rehabilitation. Rehabilitation of the patient should begin before the surgery, so that the effects of temporary immobilization are as small as possible.

The available literature includes mainly recommendations for post-operative physiotherapy. There are no reports of improvement in the patient's performance before surgery.

In the proprietary program, the implementation of physiotherapy should be included in procedures planned before the surgery in order to reduce the possibility of postoperative complications, as well as to improve the patient's psyche.

In the preoperative period, you should take care of the patient's general fitness by using general development and breathing exercises - in order to increase the mobility of the chest, and general conditioning exercises that will improve the circulatory system. At this stage, the patient should also be taught to painlessly change positions, and instructed exercises that will be necessary in the first days after the procedure, i.e. anticoagulant and breathing exercises.

To achieve the goals of physiotherapy, it is necessary to maintain proper lung ventilation, increase the mobility of the chest, increase the strength of the respiratory muscles. One should also remember about the circulatory system, for this purpose the tasks of physiotherapy are to ensure proper venous outflow from the lower limbs and to maintain a proper muscle pump in the lower limbs. Before starting physiotherapy, it is necessary to inform the patient about its goals and make the patient aware of its necessity so that he can actively and consciously participate in the process, and not be its passive element.

As for good physiotherapeutic practice, it is important to remember about the patient's assessment and the history of the underlying disease. The assessment should take into account the efficiency of the respiratory and circulatory systems, general fitness of the patient, body structure and composition. The physiotherapist should also learn about the type and extent of the planned surgery, and determine indications and contraindications for physiotherapy.

The most important goal of physiotherapy in the postoperative period is early activation and upright positioning. One should remember about gradual upright standing of the patient in order to avoid orthostatic syncope. In the period immediately after the procedure, breathing exercises should be fractionated so that the patient does not hyperventilate. Additionally,

anticoagulation exercises can be supported by passive positioning of higher limbs and the use of pressure bandages.

During this period, the most important thing is self-empowerment of the patient, which also has a positive effect on his mental sphere, as he ceases to be dependent on third parties and can take care of his basic everyday activities, thus increasing his comfort.

In the period after leaving the hospital, it is important for the patient to continue the exercises they have learned and to continue physiotherapy in outpatient facilities, or to use spa treatment. At this stage, the improvement process should be focused on the return of functions. Kinesiotherapy should be task-oriented and focused on everyday activities.

4. Conclusions

There are no reports in the available literature on the impact of implementing physiotherapy in patients prior to scheduled procedures. It can be concluded that the implementation of such a procedure would shorten the patient's stay in the hospital, and also contribute to the occurrence of a shorter akinesia time, and thus reduce the risk of postoperative complications.

A frequently emerging issue is the emergence of depression due to surgery, it is associated with fear, anxiety and uncertainty. Another cause of depression mentioned by the authors is postoperative pain and limitation related to the patient's independence. This problem can also be eliminated by physiotherapy, which is already mentioned in the available literature.

After analysis, you can infer:

1. Physiotherapy should be implemented at every stage of treatment, both pre-hospital, inpatient and post-hospital.
2. Physiotherapy reduces the consequences of immobilization associated with the procedure
3. Physiotherapy has a positive effect on the mental sphere of the patient.

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