Medical rehabilitation of cancer patients:
a literature review

Relevance: Today, the restorative treatment of patients with malignant neoplasms remains a relevant issue. This section of oncology is the most laborious and requires an integrated approach. The concept of Quality of Life (QoL) increasingly appears in clinical trials, along with survival.

The study aimed to review the literature on various aspects of medical rehabilitation of cancer patients.

Results: The selected sources analysis suggests the necessity of an integrated approach to the restorative treatment of cancer patients because the changes in these patients’ life status are often pronounced. These changes might involve the patient’s physical condition and its various functional indicators; psycho-emotional state, with the relationship between predictive perception, QoL and the patient’s mood; and the social status, which is decisive for the patient’s reintegration into society. Such a multilateral approach will cover all aspects of patients’ life activity and address the main focus of cancer patients’ medical rehabilitation – their QoL improvement.

Conclusion: Implementation of an integrated medical rehabilitation program for cancer patients will promote a maximum possible restoration of these patients’ life conditions and facilitate their physical and psycho-social adaptation after specialized treatment.

Keywords: oncology, medical rehabilitation, quality of life (QoL).

Introduction: Today, a high incidence of malignant neoplasms and the still significant percentage of patients with advanced forms of the disease are among the main causes of disability in the population [1-3]. Therefore, such a clinical oncology section as cancer patients’ rehabilitation should be on the same level as modern prevention, diagnostics, and treatment of these patients. Rehabilitation measures should not wait after the patient has various kinds of physical and psycho-emotional dysfunctions due to special treatment and (or) complications of the tumor process (most often, this is the opinion of novice specialists or students) but should start from the moment cancer is diagnosed. Patients registered with an oncologist often experience various functional impairments that affect their quality of life (QOL) and workability. Their physical disorders can include fatigue, decreased muscle strength, cognitive dysfunction, paresthesias, or eating problems; mental symptoms can include anxiety, depression, fear of relapse, or insomnia [4, 5].

The study aimed to review the literature on various aspects of medical rehabilitation of cancer patients.

Materials and methods: This literature review was based on the presentation and analysis of published sources that reflect various aspects of cancer patients’ medical rehabilitation, including conservative and surgical rehabilitation methods aimed at restoring the patients’ life status. The sources were fundamental works of scientists and articles in scientific periodicals, emphasizing the latest achievements on the research topic. The literature search in electronic databases was carried out using the following keywords: “oncology,” “medical rehabilitation,” “quality of life.” This literature review includes 26 references that meet the selection criteria.

Results: One of the important aspects of cancer patients’ comprehensive rehabilitation is the use of medication correction of the psycho-emotional state of cancer patients, which received little attention in Soviet times. There was no psychologist on the staff of oncological institutions, let alone a psychotherapist. It is clear that oncologists themselves take on this difficult role, but in some cases, not only a kind word is required, but also medicinal support of the patient’s psyche [6, 7].

Thus, Taiwanese researchers have found that tumor nosology influences the need for psychotropic drugs [8]. They analyzed the data of 35,137 cancer patients from the Taiwanese national medical insurance system database for 2.5 years. Every 5th (20.9%) of the survivors for six months took psycho-
tropic drugs, most often sedatives (14.3%), also antidepressant drugs (5.5%), antianxiety drugs (3.6%), and antipsychotic agents (2.7%). Lung cancer, prostate cancer, and oral cancer showed a statistically significant correlation with regular intake of drugs during the first six months after diagnosis. Among the 2.5-year survivors, 4.8% still take psychotropic drugs regularly.

Emer et al. [9] emphasized a significant impact of the inflammatory changes themselves and the violation of redox processes after radical surgery for esophageal cancer on the patients’ QoL and survival. Therefore, a comprehensive approach to the rehabilitation of these patients, including special exercises and a specific diet, helps control the negative side effects of treatment. The authors note that the results obtained will be further studied in a larger randomized controlled trial. The impact on the patients’ survival and the economic impact of full rehabilitation of these patients will be studied.

Catherine et al. made a systematic search for papers in Medline, Cinahl, Embase, Scopus, and Cochrane databases [10] to establish that despite the evidence and the existing guidelines on lung cancer patients’ physical activity, they are poorly used in clinical practice. This systematic review showed a multifaceted nature of adequate physical rehabilitation of lung cancer patients. It covers a variety of factors, including patient-level factors such as symptoms, comorbidities, sedentary lifestyles, mood and fear, and environmental factors, and all these should be considered when determining and developing these patients’ treatment and rehabilitation programs.

Often, little attention is given to the fact that the close ones bear the main moral burden of taking care of a cancer patient. Swedish researchers Ji et al. [11] report a higher risk of coronary heart disease and stroke in people taking care of their spouses with cancer. This should be considered in the approach to the correction of the psychological state of the patients and their close ones (family rehabilitation).

At that, Badr et al. found a low level of self-efficacy and a high level of distress in people providing self-care for patients with advanced lung cancer [12]. The authors conducted experimental research covering 39 patients and proposed a care coordination and care skills training program based on self-determination theory. The study participants noted a significant decrease in the level of depression, anxiety, and the burden of caring for the patient, an increase in the caregiver’s competence, and the emergence of autonomous motivation in the caregiver to provide care compared to conventional medical care.

Kim et al. reported similar results [13]. According to the authors, the difficulty of psychological adaptation of relatives in families with a cancer patient and the lack of social support are the main predictors of major depressive disorders even three years after the diagnosis. Therefore, adaptation programs for long-term care are critical to ensure long-term active caregiving (5-year results taken into account).

El-Jawahri et al. [14] found that patients’ inadequate perception of their prognosis regarding cancer affects many of their healthcare decisions. However, the relationship between predictive perception, QoL, and the patient’s mood is not fully understood. The authors stated that while patients wished to know more about their diseases, half of them mistreated their positive prognosis. 38 (76%) out of 50 patients included in the study would appreciate more information about the diagnostic tests and treatment they were prescribed. 25 (50%) patients stated that their goal was to “cure cancer,” and only 10 (20%) reported they completely “gave their fate in the hands of an oncologist.” Patients who admitted their illness as a sentence reported a lower QoL level (P=0.005) and higher anxiety (P=0.003) than those who did not perceive themselves as terminally ill. The authors established a direct relationship between accurate predictive perception and the QoL of patients. Therefore, the measures aimed to improve understanding of the disease prognosis provide adequate psycho-social support to such patients.

We know well the importance of applying all known methods to alleviate cancer patients’ condition and restore their well-being. Such methods include art therapy, a nonconventional, however efficient method in a comprehensive rehabilitation treatment program.

Thus, Jeongshim et al. [15] decided to evaluate the effect of art therapy on the manifestation of prolonged chronic stress (distress) in cancer patients receiving radiation therapy. They evaluated the level of anxiety, depression, and cancer-related symptoms. The prospect study included 24 patients with various cancers. Art therapy was provided in two parts, including four sessions using famous paintings and four sessions using works of art of creative youth. The sessions were conducted twice a week for four weeks. The distress was evaluated by HADS, HDRS, and ESAS scales before the art therapy and after the 4th and 8th
sessions. 20 (83%) of 24 enrolled patients completed all eight sessions. The authors registered a significant decrease in depression and anxiety indicators by all scales used in the study.

Some nosological forms of malignancies and mutilating surgical interventions used for these diseases, such as enucleation of the eye, removal of the rectum’s obturator, lead to the most profound psycho-social disability of patients. Laryngeal cancer is one of such cancer localizations [16]. Bussian et al. [17] noted the tendency to underestimate the need for socio-psychological rehabilitation for patients after larynx resection. These patients daily face the consequences of the operation. Thirty-six patients who underwent surgery for laryngeal cancer over the past two decades were questioned at home using the DSM-IV (SCID) structure clinical questionnaire. Psychiatric disorders were found in 17.3% of patients after larynx resection and 22.2% of patients after laryngectomy. A comparison for four variables (age, the time elapsed since diagnosis, gender, and subjective speech intelligibility) showed that subjective speech intelligibility and age significantly influenced the frequency of psychiatric disorders in such patients. Based on the obtained data, the authors proposed to screen outpatients not receiving proper correctional treatment for psychological disorders by assessing the subjective speech intelligibility.

Giordano et al. [18] assessed QoL satisfaction in laryngeal cancer patients after voice rehabilitation using voice prostheses. The control group included patients without voice prostheses and healthy individuals. The prospect study included 42 patients. Of them, 24 could restore the voice with voice prostheses (Group A), and 18 have mastered esophageal voice (Group B). The results were compared to a group of 25 healthy individuals (Group C). QoL was assessed using a short form of the SF-36 questionnaire. The satisfaction with QoL in Group A was also assessed with specific questions regarding the use of a voice prosthesis. The study revealed a statistically significant difference between A and B, A and C groups by scales reflecting social and physical functioning. At that, Group A patients were very satisfied with their quality of voice but noted certain problems in communicating via phone or in a loud setting. The authors noted that despite the positive impact of prosthetics on the patients’ QoL, the main emphasis should be on improving early laryngeal cancer detection to preserve the voice function in partial larynx resection, which is the current “gold standard.”

Neuromuscular electrostimulation (NMES) is a modern method of rehabilitation treatment of cancer patients [19]. NMES can be a pragmatic short-term alternative to voluntary exercise in patients undergoing or just completed treatment for malignant tumors. The cited paper assessed the impact of personalized and progressive exercise intervention with NMES during the early rehabilitation period on patients’ physical performance and QoL. The EORTC QLQ C-30 questionnaire showed an improvement in the 30-second sitting test (STS), 6-minutes walking test (6MWT), and global QoL after this manipulation. The advantages included improved muscle strength and greater confidence when walking. The authors recommend further assessment of this method in a controlled prospective study.

The assessment method used is an important factor when analyzing the effectiveness of ongoing rehabilitation measures. E.g., Khozhayev et al. calculated the coefficient of “labor rehabilitation” to study the impact of the postponed radical surgery on the ability to work in 134 colon cancer patients with end colostomy [20]. According to the authors, «this indicator reflects the actual return to work of patients with tumors of the main localizations regardless of their assessment by the medico-social expert board, their incapacity for work. Labor rehabilitation is a total indicator, which includes the share of persons who returned to work on their own, the share of those working with the III group of disability, and the share of persons who were assigned to disability groups I and II during the initial examination and returned to work.» In the reported study, the labor rehabilitation coefficient amounted to 71.3±4.9%. At that, the self-rehabilitation coefficient reflecting the proportion of people who independently returned to the preoperative lifestyle (a ratio of patients who returned to work without passing the medico-social expert board to the total number of patients with this localization) amounted to 18.4±4.2%.

A discussion about cancer patients’ medical rehabilitation requires mentioning the issue of rehabilitation activities for children with cancer. Khussainova et al. [21] conducted a study at the Kazakh Institute of Oncology and Radiology on the topic, «Development and improvement of a psycho-social rehabilitation program for improving the quality of life of children with tumors of the central nervous system.» The program focused on the consequences of the disease, such as emotional, behavioral, and neuropsychological rehabilitation.
The system of psychocorrectional measures included a differentiated combination of methods of individual, group, and socio-centered intervention aimed at reducing the level of symptoms, the inclusion of adequate psychological protection, and increasing the success of rehabilitation processes. The system of psychocorrectional work included art therapy methods such as fairy tale therapy, puppet therapy, sand therapy, etc. The authors stated the ability of those methods to correct children's behavior and moods, help cope with emotions and phobias and form a positive perception of the surrounding reality and social relations. The conducted psychological diagnostics of parents revealed a high percentage of neurotic and depressive reactions and conditions requiring qualified and sufficiently long-term assistance. Mental disorders in parents were most often caused by a chronic traumatic situation, overwork, often malnutrition and lack of sleep, financial, housing, and other everyday problems that arose in connection with the development of a serious illness in the child. In the course of the study, the authors emphasized the need to improve the model of providing social assistance, developed recommendations and information materials to increase the social protection of cancer patients.

A fundamental monograph on the modern palliative care system in oncology was published in 2017 by D.R. Kaidarova and G.A. Afonin [22]. The book reviews the issues of palliative medicine development in the context of social progress, provides a detailed description of organizational levels and principles of a multidisciplinary approach in the provision of palliative care for cancer patients, and describes modern methods of correction of disorders of various organs and systems during palliative treatment, including integrated accompanying therapy. This monograph is of great scientific and practical importance both for doctors of various specialties and research workers and teachers, residents, interns, and senior students of higher medical and social educational institutions.

Recently, clinical trials increasingly use the term “multimodal,” which means “involving or using multiple modes, modes of implementation.” The analysis of literature regarding multimodal rehabilitation of cancer patients showed that the overwhelming number of scientific works is devoted to the use of rehabilitation measures at the stage of preparing patients for specialized treatment, be it surgery or drug or radiation therapy. Thus, Van Rooijen et al. [23] communicated their plans to conduct “the first” international randomized controlled trial on multimodal preliminary (preoperative) rehabilitation of patients with colorectal cancer involving 714 patients after radical surgery. The patients will be divided into two groups: a control group and a main group that will receive for 4 weeks prehabilitation measures including nutritional, exercise and psychological support methods based on ERAS standardized guidelines according to the optimal care methods described by K.C. Feron [24]. All patients of the main group will receive a brochure containing details of all rehabilitation elements. The authors expect an improvement in the postoperative course with a reduction in postoperative complications, improved physical and psychological conditions and the patients’ QoL, and better tolerance to adjuvant treatment.

Do et al. [25] studied the use of a multimodal rehabilitation program in breast cancer patients. The program included aerobic exercise, i.e., light to moderate intensity exercises, as well as stretching and strengthening exercises. The researchers noted an improvement in physical function and QoL of patients. QoL was assessed using the EORTC QLQ-C30 general questionnaire of the European Organization for the Research and Treatment of Cancer and the QoL questionnaire specific for breast cancer – EORTC QLQ-BR23.

Bolshinsky et al. [26] have analyzed the results of studies of multimodal rehabilitation programs before surgical interventions for tumors of the gastrointestinal tract available in Medline, PubMed, Embase, Cinahl, Cochrane, and Google Scholar databases. The study quality was assessed using the Cochrane Risk of Bias Assessment Tool (randomized trials) and the Newcastle-Ottawa Quality Assessment Scale (cohort studies). 20 out of 544 revealed studies were included in the qualitative analysis. The authors found that despite some promising results in small studies, larger prospective studies using single objective risk stratification and structured interventions with predefined clinical and economic endpoints are required to determine the final value of pre-rehabilitation programs. **Conclusion:** The conducted analysis of papers dedicated to rehabilitation measures in cancer patients with various nosological forms of malignant neoplasms shows that a versatile approach is required when carrying out the rehabilitation treatment of these patients to achieve compensation of impaired body functions, improvement of QoL, re-
duction of the severity of disability and prolongation of active life. The process of recreating the life status of patients is multidimensional and requires an integrated approach to restore the physical, psycho-emotional, and social conditions of patients. At that, nearly all authors agree that further multicenter randomized trials are required to develop standardized approaches to carrying out rehabilitation measures in cancer patients.

References:
23 Van Rooijen S., Carli F., Dalton S. et al. Multimodal prehabilitation in colorectal cancer patients to improve functional capacity and reduce postoperative complications: the first international randomized controlled trial for
LITERATURE REVIEW


ақырдылық науқастардың медициналық реабилитациясы: гылыми эдебиеттегі мәліметтерге шолу жасау

Онкологиялық науқастардың медициналық реабилитациясы: гылыми эдебиеттегі мәліметтерге шолу жасау

Эпистемі. Казіргі ұйқыла көрсетілген көрсеткіштер қалпты қамтамасыз ету үшін туралыға, мемлекеттер өкілдерінің взаимоотношения больных также включает в себя вопрос о качестве жизни и их психо-эмоциональном состоянии.

Түйінді сөздер: онкология, медицинская реабилитация, качество жизни.

АНАТОМАЯ

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Медицинская реабилитация онкологических больных: обзор литературы

Актуальность: В настоящее время вопросы, касающиеся восстановительного лечения больных злокачественными новообразованиями, продолжают оставаться актуальными. Этот раздел онкологии наиболее трудоёмкий и требует комплексного подхода, а понятие качества жизни всё больше фигурирует в клинических исследованиях вместе с выживаемостью.

Цель исследования: провести обзор литературных данных о различных аспектах медицинской реабилитации онкологических больных.

Результаты: Анализ отобранных опубликованных источников даёт основание полагать, что необходим комплексный подход при проведении восстановительного лечения онкологических больных, так как изменения жизненного статуса этих пациентов зачастую носят выраженный характер и затрагивают физическое состояние пациента и его различные функциональные показатели, психо-эмоциональное состояние с отношением между прогнозическим восприятием, качеством жизни и самим настроением пациента, а также социальный статус, который является определяющим при реинтеграции пациента в общество. Такой многосторонний подход позволит затронуть все сферы жизнедеятельности пациентов и решить главную задачу медицинской реабилитации онкологических больных – улучшение качества их жизни.

Заключение: Применение комплексной программы медицинской реабилитации онкологических больных позволяет максимально восстановить жизненное состояние этих пациентов и облегчить процесс их физической и психосоциальной адаптации после специализированного лечения.

Ключевые слова: онкология, медицинская реабилитация, качество жизни.