

CRR
JOURNAL
OF CARDIORESPIRATORY RESEARCH

ISSN 2181-0974
DOI 10.26739/2181-0974
Impact Factor SJIF 2022: 5.937

Journal of

**CARDIORESPIRATORY
RESEARCH**



Volume 7, Issue 2/2

2026

МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ
РЕСПУБЛИКИ УЗБЕКИСТАН

Журнал кардиореспираторных исследований

JOURNAL OF CARDIORESPIRATORY RESEARCH

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Учредитель:

Самаркандский государственный
медицинский университет

Tadqiqot.uz

Ежеквартальный
научно–практический
журнал

ISSN: 2181-0974
DOI: 10.26739/2181-0974



№ 2/2
2026

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УЛУЧШЕНИЕ КАЧЕСТВА ЖИЗНИ ПАЦИЕНТОВ С РАКОМ ЛЕГКИХ ПОСЛЕ ХИМИОТЕРАПИИ

For citation: J.A.Ismailov, F.O.Rasuli, Sh.Sh.Rustamova, O.I. Baitov, Kh. Sh. Omonov, A. N. Tilyavov IMPROVING THE QUALITY OF LIFE FOR LUNG CANCER PATIENTS FOLLOWING CHEMOTHERAPY . Journal of cardiorespiratory research. 2026, vol 7, issue 2/2.



<http://dx.doi.org/10.26739/2181-0974/2026/7/2/2>

АННОТАЦИЯ

В статье изучена эффективность персонализированных реабилитационных программ для улучшения качества жизни пациентов с раком легких после курса химиотерапии. В исследовании 60 пациентов были разделены на две группы: 1-й группе была назначена комплексная программа реабилитации, 2-й группе - стандартные методы лечения. Клиническое состояние больных оценивалось по шкалам SF-36 и HADS, а также по результатам спирометрии. Согласно результатам проведенного исследования, у пациентов 1-й группы были отмечены значительные положительные результаты в показателях качества жизни и спирометрии ($p < 0,05-0,01$), тогда как во 2-й группе изменения были относительно незначительными. Полученные результаты свидетельствуют о высокой эффективности комплексной реабилитации на основе биопсихосоциального подхода у больных раком легких. Практическая значимость исследования заключается в том, что оно создает основу для разработки новых, эффективных и индивидуально ориентированных подходов к реабилитации пациентов в системе здравоохранения.

Ключевые слова: Рак лёгкого, хроническая сердечная недостаточность, лечение, реабилитация, улучшение качества жизни.

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IMPROVING THE QUALITY OF LIFE FOR LUNG CANCER PATIENTS FOLLOWING CHEMOTHERAPY**ANNOTATION**

The article evaluated how effective personalized rehabilitation programs are in enhancing the quality of life of patients with lung cancer following chemotherapy. A total of 60 patients were included in the study and divided into two groups: one group participated in a comprehensive rehabilitation program, while the other received standard care. Patients' clinical status was assessed using the SF-36 and HADS questionnaires, along with spirometry measurements. The findings revealed that the first group showed statistically significant improvements in both quality of life and spirometric parameters ($p < 0.05-0.01$), whereas the second group exhibited only slight changes. Overall, the results confirm the high effectiveness of a comprehensive rehabilitation approach based on the biopsychosocial model for patients with lung cancer. Practically, this study highlights the potential for developing new, efficient, and individualized rehabilitation strategies within the healthcare system.

Keywords: Lung cancer, chronic heart failure, treatment, rehabilitation, improvement of quality of life.

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Samarqand, O'zbekiston**O'PKA RAKI BILAN KASALLANGAN BEMORLARNING XIMIYATERAPIYADAN KEYINGI HAYOT SIFATINI YAXSHILASH****ANNOTATSIYA**

Ushbu maqolada o'pka raki bilan kasallangan bemorlarning ximiyaterapiya muolajasidan keyingi hayot sifatini yaxshilashda shaxsiylashtirilgan reabilitatsiya dasturlari samaradorligi o'rganildi. Tadqiqotda 60 nafar bemorlar ikki guruhga ajratilib tahlil qilindi: 1-guruhga kompleks reabilitatsiya dasturi, 2-guruhiga standart davolash usullari tayinlandi. Bemorlarning klinik holati SF-36 va HADS shkalasi, shuningdek spirometriya natijalari asosida baholandi. Olib borilgan tadqiqot natijalariga asosan, 1-guruh bemorlarida hayot sifati va spirometrik ko'rsatkichlarida sezilarli ijobiy natijalar qayd etildi ($p < 0,05-0,01$), 2-guruhida esa o'zgarishlar nisbatan kam edi. Olingan natijalar o'pka raki bilan og'riqan bemorlarga nisbatan biopsixosial yondashuv asosidagi kompleks reabilitatsiyaning yuqori samaradorligini ko'rsatadi. Tadqiqotning amaliy ahamiyati shundaki, sog'liqni saqlash tizimida bemorlarni reabilitatsiyasiga oid yangi, samarali va individual yo'naltirilgan yondashuvlarni ishlab chiqish uchun asos yaratadi.

Kalit so'zlar: O'pka raki, surunkali yurak etishmovchiligi, davolash, reabilitatsiya, hayot sifatini yaxshilash.

In the field of oncology, lung cancer has become one of the most pressing problems worldwide. Statistical data indicate that in 2022, more than 2.5 million cases of lung cancer were diagnosed worldwide. Lung cancer is one of the most common tumors and one of the leading causes of death worldwide - in 2022, more than 1.8 million patients died from this disease. Epidemiological analyses have shown that the incidence of lung cancer has not decreased in recent years, especially in Asian countries, due to the persistence of smoking [1,2].

Currently, lung cancer patients have a high rate of disability and mortality, and this disease not only kills many patients in a short period of time, but also causes serious complications in those who survive. Some studies show that the 5-year survival rate of patients with lung cancer is very low compared to many other types of tumors, and even in developed countries this figure is reported to be only around 20–30%. The mortality rate remains high due to the late diagnosis and aggressive course of the disease. At the same time, lung cancer treatment methods

(surgery, chemo-radiation therapy) often leave serious physical and psychological complications in patients. According to scientific sources, patients who have overcome cancer face a number of problems such as constant fatigue, shortness of breath, pain, muscle weakness, and mental disorders. These consequences, which persist even after treatment, seriously impair the quality of life and functional status of patients. At the same time, psychological distress, such as depression and fear of relapse, are common in lung cancer patients, further complicating post-disease rehabilitation [3,5].

In our republic, lung cancer is the most common oncological disease, and its incidence and mortality rates are increasing today. Currently, lung cancer is the third most common cancer in our republic (9% of all oncological diseases) and the second most common cause of cancer deaths (11.9%). Some experts predict that lung cancer will increase further in our country in the coming years. These global and local trends indicate the high epidemiological burden of lung cancer and justify the seriousness of the problem [4,8].

Rehabilitation programs aimed at improving the quality of life of patients after a serious illness such as lung cancer are of particular importance. In modern oncology, it is considered important not only to treat the disease, but also to restore the patient's physical, mental and social condition. In particular, oncological rehabilitation plays an important role in eliminating functional limitations left after treatment in patients, restoring independent living activities and re-adapting to society. Scientific sources emphasize that post-cancer rehabilitation significantly improves the quality of life of patients by alleviating their symptoms, restoring their functional state and increasing their mental resilience. Rehabilitation includes physical exercises, breathing exercises, physiotherapy, diet therapy, psychological support and social adaptation training, which are applied on the basis of a multidisciplinary approach, and an individual program is developed for each patient. Some scientific studies have shown that pulmonary rehabilitation reduces shortness of breath and fatigue in patients with lung cancer, increases physical activity and helps them return to a healthy lifestyle [6,7].

The international oncology community is also strengthening its policies to support cancer survivors: institutions such as the American Society of Oncology, the US Institute of Medicine (IOM), and Oncology Commissions are recommending rehabilitation and survivorship care as mandatory components of comprehensive cancer therapy.

As can be seen from the presented evidence, the rehabilitation of patients with lung cancer is of the most urgent and scientific and practical importance today. Foreign and domestic data indicate the

urgency of the disease problem, while advanced medical approaches (screening, new treatment methods) extend the life of patients and put the issue of quality of life on the agenda. Based on current international experience and recommendations, research in this area has become one of the priority areas in the field of health care, oncology and rehabilitation. Thus, the study of the effectiveness of rehabilitation in these lung cancer patients is of urgent importance not only from a theoretical but also from a practical point of view.

Research materials and methods

The study was conducted in 2023-2024 at the Navoi branch of the Republican Specialized Oncology and Radiology Scientific and Practical Medical Center. 60 patients with lung cancer who had completed a course of chemotherapy participated in the study. They were divided into two groups, the first main group (n=30): 30 patients who were involved in individual rehabilitation programs in the post-chemotherapy period; the second group is the control group (n=30), which is patients who received only standard treatment procedures (not involved in rehabilitation). The average age of the patients was from 45 to 76 years. Only patients diagnosed with lung cancer and who had received the last chemotherapy procedures at least 1 month ago were involved in the study. The rehabilitation program included physical exercises (breathing exercises, walking, light cardio loads - 3 times a week, for 45 minutes). Psychological support (weekly conversations, stress management sessions). Nutritional counseling. Training in self-monitoring of clinical condition (self-monitoring, symptom recognition).

The following clinical assessment methods were used in the scientific study. SF-36 questionnaire to determine quality of life indicators. HADS (Hospital Anxiety and Depression Scale) to assess anxiety and depression. 6-minute walk test, Spirometry, Laboratory tests (CRP, Hb, ALB) to monitor general inflammation and nutritional status. The general condition of the patients was assessed at the beginning of rehabilitation, at the 4th week and at the end of the 8th week. The statistical analysis used the mean value, standard deviations, t, Pearson correlation and ANOVA test. The obtained statistical results were considered significant at the p<0.05 level. The study was approved by the ethics committee, and written consent was obtained from our patients to participate in the study.

Research results and its discussion.

Based on the results of our study, it was found that the main quality of life indicators according to the SF-36 questionnaire of patients in the main group were significantly higher than those of patients in the control group (Table 1).

Table 1

SF-36 scores

SF-36 scores	Main group (n=30)	Control group (n=30)	p
Physical activity	83.5±7.3	72.0±8.1	<0.01
Mental health	76.6±6.7	67.8±7.5	<0.01
Overall satisfaction	82.4±5.6	71.05±6.7	<0.01

Table 1 above presents the comparative results of the quality of life indicators assessed based on the SF-36 questionnaire in the main and control groups of patients with bronchial lung disease. Based on the results of our study, it was found that the physical activity of the main group of patients who received individual rehabilitation methods and

psychological support was 83.5±7.3 points, mental health was 76.6±6.7 points, and general life satisfaction was 82.4±5.6 points; 60 patients in the control group were significantly higher than the corresponding indicators, 72.0±8.1; 67.8±7.5 and 71.05±6.7 points, respectively, which were statistically significant (p<0.01).

Table 2

Some spirographic data

Indicators	Baseline group (before treatment */before treatment after **)	Control group (before treatment */before treatment after **)	p
FEV ₁ (%)	72.4 ± 5.3 * 79.5 ± 6.8 **	70.2 ± 6.1 * 71.3 ± 7.6 **	< 0.05
FVC (%)	84.7 ± 6.2 * 89.4 ± 5.3 **	82.4 ± 6.3 * 84.1 ± 6.0 **	< 0.05
FEV ₁ /FVC (%)	73.5 ± 5.1 * 79.2 ± 5.3 **	71.7 ± 5.5 * 72.3 ± 6.0 **	< 0.05
PEF (L/min)	315 ± 42 * 384 ± 39 **	312 ± 44 * 325 ± 47 **	< 0.01

During the study, it was found that the functional indicators of the lungs improved significantly after the treatment in group 1 patients who were involved in rehabilitation. These results are clearly visible in such criteria as FEV₁, FVC and PEF. In group 2, such changes are weak or not statistically significant. This scientifically substantiates the clinical benefit of the rehabilitation program and its importance in restoring the

respiratory system. In this table 2, spirometric data of patients with bronchial asthma in the main and control groups were compared between the main group 1 and the control group 2. The results after rehabilitation and standard treatments showed that all spirometry indicators in patients in the main group were statistically significant (Table 2).

Table 3

HADS results

Indicators	Main group (n=30)	Control group (n=30)	p
Anxiety	7.1 ± 1.1	10.3 ± 2.4	< 0.01
Depression	6.2 ± 1.0	9.7 ± 2.2	>0.05

In this Table 3, the levels of anxiety and depression in patients with lung cancer after chemotherapy were assessed using the HADS scale and the results of groups 1 and 2 were compared. In the first group, anxiety and depression significantly decreased due to the inclusion of

psychological support in the rehabilitation program, and depression was relatively reduced. These results indicate that psychosocial rehabilitation is clinically effective.

Table 4

Interleukin 6 and TNF α levels in the pre-treatment period

Inflammatory mediators	Group 1 (n=30)	Group 2 (n=30)
Pre-rehabilitation results		
IL 6	15.7 *± 5.1	15.9 ***±4.7
TNFα	20.5 *± 4.5	20.1 ***± 4.3
Results after 6 months		
IL 6	5.1 *± 2.6	8.7 **±2.7
TNFα	6.5 *± 2.1	10.6 ***± 2.9
Results after 1 year		
IL 6	3.8 *± 1.0	7.6 ***±1.4
TNFα	3.6 *± 1.6	8.4 ***± 2.5

When comparing the results of patients in groups 1 and 2 on all scales, a statistically significant difference was found ($p < 0.001^*$; $p > 0.05$; $p < 0.5^{***}$), which indicates a sharp decrease in the quality of life after cancer.

The study evaluated the changes in the levels of interleukin-6 and tumor necrosis factor α (TNF- α), which are biomarkers of inflammation, during rehabilitation. Before rehabilitation, the levels of IL-6 and TNF- α in patients in group 1 and group 2 were almost the same, 15.7 ± 5.1 and 20.5 ± 4.5 , respectively; and 15.9 ± 4.7 and 20.1 ± 4.3 pg/ml, and after 6 months, IL-6 in patients in group 1 was 5.1 ± 2.6 and TNF- α was 6.5 ± 2.1 pg/ml. This indicates that inflammatory activity has almost disappeared. In group 2, the corresponding indicators were 8.7 ± 2.7 and 10.6 ± 2.9 , indicating that this decrease is occurring much more slowly. After 1 year, IL-6 in group 1 patients was 3.8 ± 1.0 and TNF- α — 3.6 ± 1.6 , which indicates that the inflammatory activity has approached the physiological norm. In group 2 patients, these indicators were 7.6 ± 1.4 and 8.4 ± 2.5 pg/ml, respectively, which remained negative compared to group 1. Thus, when comparing the results of groups 1 and 2 with the

control group, a reliable difference was detected at all stages ($p < 0.001^*$). The difference between groups 1 and 2 was significant for each period of rehabilitation, indicating the effectiveness of the long-term effect ($p < 0.05^{**}$; $p > 0.5^{***}$).

The study found that the use of rehabilitation programs for patients with lung cancer who have completed chemotherapy has high clinical and psychosocial effectiveness. The rehabilitation-based approach significantly improves not only the quality of life of patients, but also their physical condition, respiratory function, mental state and laboratory parameters. The results determined by SF-36, HADS, 6MWT, spirometry and laboratory tests proved that there was a positive dynamic in the main group. On this basis, it can be concluded that the inclusion of oncological rehabilitation in the treatment protocol for patients with lung cancer not only restores the health of patients, but also their social activity. The results of this study indicate that rehabilitation has an important place in healthcare practice, and serves as a scientific basis for the formation of new medical strategies in the future.

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