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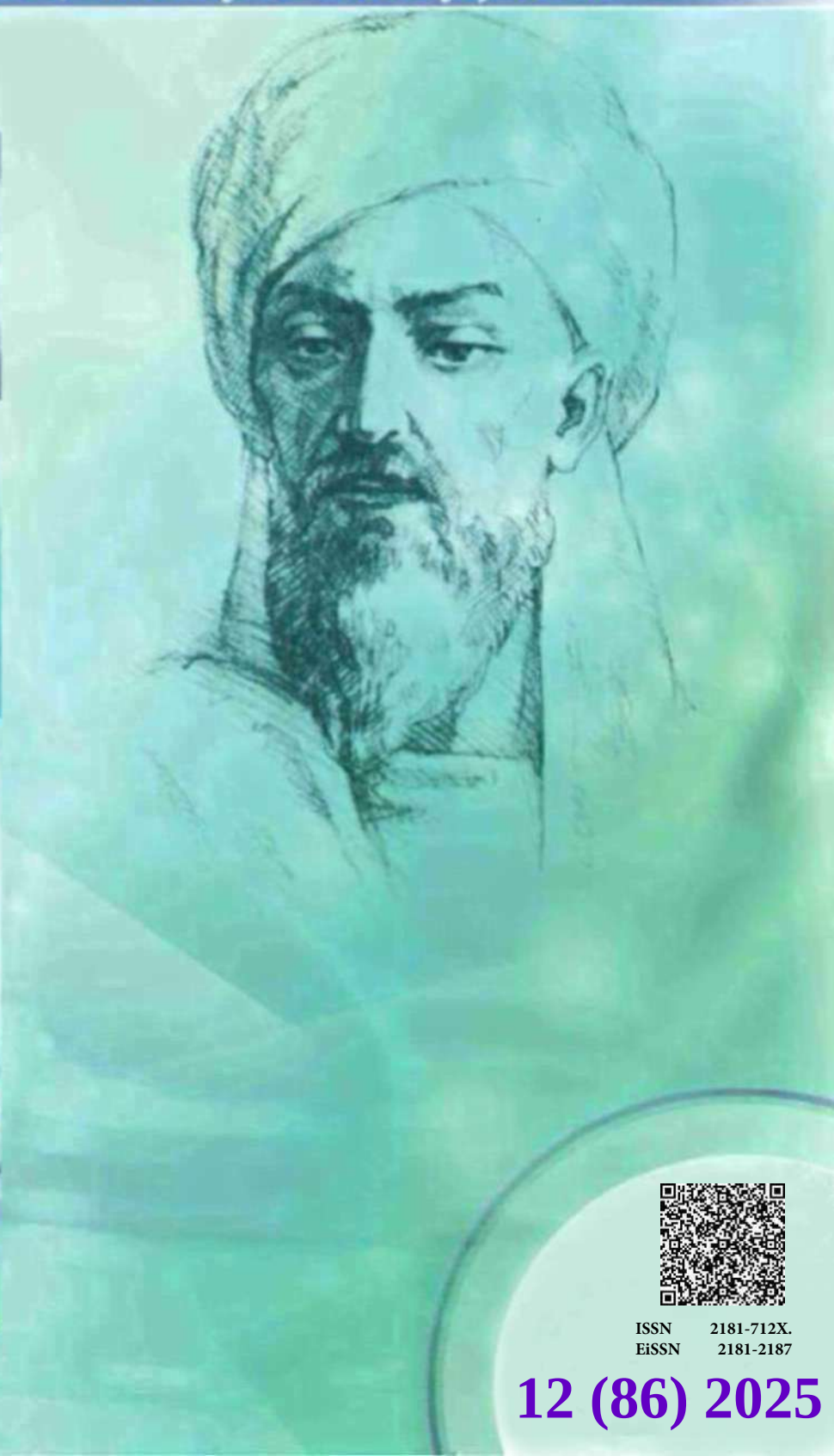


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ТИББИЁТДА ЯНГИ КУН НОВЫЙ ДЕНЬ В МЕДИЦИНЕ NEW DAY IN MEDICINE

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MODERN ASPECTS OF REHABILITATION AFTER RADIATION THERAPY IN ORAL CANCER

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✓ Resume

In the last decade, oncological diseases, including malignant neoplasms of the maxillofacial region (MN MFR) and oral cavity, have become one of the leading causes of mortality worldwide. Radiation therapy is the mainstay of treatment for malignant neoplasms of the maxillofacial region (MNOM), delivering targeted doses specific to the tumor while preserving vital structures and minimizing impact on surrounding tissues. However, future treatment strategies require optimization of rehabilitation methods for cancer patients and research in this area.

Keywords: malignant neoplasms, oncology, dentistry, rehabilitation, radiation therapy.

СОВРЕМЕННЫЕ АСПЕКТЫ РЕАБИЛИТАЦИИ ПОСЛЕ ЛУЧЕВОЙ ТЕРАПИИ ПРИ РАКЕ ПОЛОСТИ РТА

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✓ Резюме

В последнее десятилетие во всем мире онкологические заболевания, в том числе злокачественные новообразования челюстно-лицевой области (ЗНО ЧЛО) и полости рта, занимают одно из лидирующих мест в причинах смертности населения. Лучевая терапия является основополагающей стратегией лечения злокачественные новообразования челюстно-лицевой области (ЗНО ЧЛО), воздействуя целевыми дозами, специфичными для ЗНО, сохраняя жизненно важные структуры с минимальным воздействием на окружающие ткани. Однако будущие стратегии лечения требуют оптимизации методов реабилитации онкологических пациентов и научных исследований в этой области.

Ключевые слова: злокачественные новообразования, онкология, стоматология, реабилитация, лучевая терапия.

OG'IZ BO'SHLIG'I RAK KASALLIGIDA RADIATSIYA TERAPIYASIDAN KEYINGI REABILITATSIYASINING ZAMONAVIY JIHATLARI

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✓ Rezyume

So'nggi o'n yillikda onkologik kasalliklar, jumladan, yuz-jag' sohasi (YYS) va og'iz bo'shlig'ining xavfli o'smalari butun dunyo bo'ylab o'limning asosiy sabablaridan biriga aylandi. Nur terapiyasi yuz-jag' sohasining (YJS) xavfli o'smalarini davolashning asosiy yo'nalishi bo'lib, o'simtaga xos maqsadli dozalarni yetkazib beradi, shu bilan birga hayotiy tuzilmalarni saqlab qoladi va atrofdagi to'qimalarga ta'sirni minimallashtiradi. Biroq, kelajakdagi davolash strategiyalari saraton bemorlari uchun rehabilitatsiya usullarini optimallashtirishni va bu sohada tadqiqotlarni talab qiladi.

Kalit so'zlar: onkologiya, stomatologiya, rehabilitatsiya, nur terapiyasi.

Relevance

In the last decade, cancer, including malignant neoplasms of the maxillofacial region (MN MFO) and oral cavity, has become a leading cause of death worldwide [1,3]. According to the World Health Organization (WHO), up to 25% of human neoplasms occur in the MFO. From 2014 to 2024, their incidence increased by approximately 19-21%. Despite the fact that MN MFO are relatively easy to diagnose, almost one-third of their verifications occur in the late stages of oncological development [1,2]. Among malignant tumors of the maxillofacial region, 65% are malignant tumors of the tongue [6], 12.9% are malignant tumors of the oral mucosa, 10.9% are malignant tumors of the floor of the mouth, 8.9% are malignant tumors of the alveolar processes of the maxilla and hard palate, 6.2% are malignant tumors of the soft palate, and 5.9% are malignant tumors of the alveolar process of the mandible [7]. Currently, radiation therapy is the mainstay of treatment for malignant tumors of the maxillofacial region, delivering targeted doses specific to the malignant tumor while preserving vital structures and minimizing impact on surrounding tissues.

The basic conservative treatment methods for malignant tumors of the maxillofacial region are radiation therapy and chemotherapy [8]. As a result of the treatment, patients develop complications that manifest over a period of several weeks to several years [4], negatively affecting the oral mucosa (OM), bone structure, and tissue blood supply, leading to mineral resorption and the development of osteoporosis [5]. This complicates post-ablative dental implantation, which is an effective rehabilitation method due to its functional and aesthetic advantages.

However, surgeons often avoid this method in malignant neoplasms of the maxillofacial region (MFR) due to the potential for postoperative complications (decreased osseointegration and implant stability) due to tissue changes caused by oncologic processes and radiation therapy [3]. At the same time, the use of innovative methods and means of medical rehabilitation in the postoperative period can increase the effectiveness of dental implantation due to their broad spectrum of sanogenetic effects [1].

Various modern scientific works focus on "analyzing the impact of physical factors on the development of cancer, as well as the possibility of using these factors to enhance the effect of radiation therapy and other treatment methods" [14]. In addition, "methods for reducing the side effects of therapy and the recovery of cancer patients using physical rehabilitation are being studied" [9]. Today, the assertion that "physiotherapy is incompatible with cancer treatment is considered outdated and unfounded." The use of physical factors in treatment procedures is becoming an increasingly common and promising means of improving the quality of life of patients, as well as improving the results of cancer therapy [12].

Studying the effect of physiotherapy procedures on the body's defense mechanisms and the activation of the synergistic effect with other treatment methods opens up new prospects for accelerating the recovery process and ensuring a high quality of life for patients after intensive therapy [13]. It is important to consider not only drug methods, but also various physical interventions, which play a significant role in improving therapy results [10].

One of the key areas of research in the field of oncology is the analysis of the mechanisms of combating malignant neoplasms using various physical methods. Direct current, magnetic fields, laser radiation, ultrasound, and other forms of physical stimulation are of interest to physicians seeking the most effective ways to combat malignant tumors. Electrosleep, laser, and electropuncture have pronounced psychotherapeutic, sedative, and analgesic effects. Ultrasound or microwave radiation can enhance radiation and chemotherapy through hyperthermia. Photodynamic therapy, using sensitizers that increase the sensitivity of tumor cells to light, allows for the targeted destruction of affected tissue while sparing healthy areas [12].

Research has shown that laser/magnetic laser therapy plays an important role in the treatment of cancer. The safety and efficacy of low-level laser radiation have been confirmed for pain relief, improved circulation and tissue repair, and the reduction of side effects from radiation and chemotherapy [9].

According to studies, intravenous laser blood irradiation not only promotes detoxification but also helps reduce the negative effects of chemotherapy and radiation therapy on the immune system [8]. Furthermore, this method has been successfully used to improve surgical outcomes and reduce postoperative complications in patients with oropharyngeal cancer [2, 7]. Physiotherapy, massage, and

exercise therapy are actively used during rehabilitation for patients with brain gliomas [10]. Particular attention is paid to physiotherapy to stimulate defense mechanisms, given the limitations of drug therapy due to the risk of accelerated tumor growth. Laser therapy methods have been developed and successfully used in patients with gliomas of the brain [4].

The safety of physiotherapy is a key aspect not only during treatment but also in the long term, reducing the risk of tumor growth or metastasis [12]. Radiation in the infrared and visible spectra does not have oncogenic properties, does not damage the DNA structure, does not cause mutations and does not destroy enzymes necessary for immunity and regeneration of the body [11]. Infrared radiation contributes to the modulation of the immune system, which has been confirmed in patients with stage IV gastric cancer. The use of infrared laser therapy before surgery increases patient survival. A study involving more than 2,000 patients with cancer confirmed the absence of an effect of a stimulating factor on the development of cancer cells [6]. In specialized health resorts, rehabilitation of such patients is possible, including the use of hydrotherapy, singlet oxygen therapy, aerophytotherapy, exercise therapy, swimming and other methods. The use of physical therapy in patients with cancer allows for personalized and enhanced recovery, promoting more complete and earlier functional restoration, and improving quality of life.

The inclusion of physical therapy in comprehensive rehabilitation for progressive alveolar bone resorption provides effective and non-invasive interventions on the localized area, with a minimal risk of side effects both during treatment and postoperative rehabilitation in maxillofacial surgery [13].

One of the most effective physical therapy methods is gum massage, which can be used at all stages of recovery. This procedure has a positive effect on a number of physiological processes: it restores blood circulation, activates the nervous and autonomic systems at the regional level, accelerates biochemical reactions at the cellular level, and promotes rapid regeneration of damaged tissue. Massage leads to mechanical stimulation of peripheral receptors, activating reflexes that alter the function of organs and tissues [10]. This mechanical effect dilates blood vessels and increases blood and lymph circulation, which contributes to improved metabolic processes and tissue protective functions [6]. Thus, massage helps reduce inflammation and stimulate alveolar process tissue regeneration by improving microcirculation [10]. In cases of degenerative processes in the jawbone, vibration massage, which is based on low-frequency mechanical oscillations, is optimal [5]. These oscillations improve tissue circulation by dilating capillaries, which leads to increased blood perfusion, an increase in local temperature, and pain relief.

Conclusion

Currently, radiation therapy is a fundamental strategy for the treatment of malignant neoplasms of the maxillofacial region (MN MFR), applying target doses specific to the MN, preserving vital structures with minimal impact on surrounding tissues. However, future treatment strategies require optimization of rehabilitation methods for cancer patients and scientific research in this area.

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