

DYNAMIC ASSESSMENT OF QUALITY OF LIFE ASSOCIATED WITH VISUAL IMPAIRMENT IN PATIENTS RECEIVING CHEMOTHERAPY

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ABSTRACT

Relevance: Chemotherapy and targeted therapy used in cancer treatment are often associated with side effects that affect visual function. Such complications include dry eye syndrome, cataracts, keratopathy, and retinopathy, which can significantly worsen patients' quality of life. This work focuses on assessing the quality of life of cancer patients experiencing visual impairment and the importance of monitoring these side effects.

The study aimed to explore the quality of life of cancer patients with visual impairments resulting from exposure to chemotherapy and targeted therapy, with special attention to the timing of visual complications, their severity, and reversibility.

Methods: The study analyzed 65 scientific articles in Russian and English published in PubMed, Embase, Cochrane Library, Scopus, Web of Science, and Google Scholar databases from 2012 to 2024. The search used keywords related to chemotherapy, toxic effects on vision, and malignant neoplasms. The study included meta-analyses, systematic reviews, controlled clinical trials, and individual case reports.

Results: Chemotherapeutic drugs such as cisplatin and paclitaxel cause visual impairment, including dry eye syndrome, red eyes, cataracts, and retinopathy. Targeted drugs such as bevacizumab and erlotinib cause corneal damage, conjunctivitis, and uveitis. Visual impairment significantly worsens patients' quality of life, creating difficulties in performing everyday tasks such as reading, driving, and recognizing faces. These impairments also cause discomfort, dry eyes, and lacrimation and can lead to decreased visual acuity. In rare cases, the consequences of such impairments lead to partial or complete loss of vision, which seriously affects the patient's social functioning and emotional state. The use of special ophthalmological questionnaires allows for the early detection of side effects, which helps improve patients' quality of life.

Conclusion: Dynamic quality of life assessment represents a promising approach to understanding and addressing visual impairment in patients receiving chemotherapy and targeted therapy. These methods consider temporal variations and contextual factors that influence quality of life, opening the way for personalized interventions that may improve treatment outcomes.

Keywords: chemotherapy, targeted therapy, visual impairments, quality of life.

Introduction: The International Agency for Research on Cancer (IARC) has estimated that there will be 20 million new cases of cancer and 9.7 million cancer-related deaths in 2022 [1]. Among the most frequently diagnosed cancers, lung cancer and breast cancer stand out, accounting for 2.5 million and about 2.3 million new cases, respectively [2].

Lung cancer was the most common cancer worldwide in 2022, accounting for 12.4% of all cancer cases, or every eighth diagnosis. Breast cancer among women is in second place with a share of 11.6% [3], followed by colon cancer (9.6%), prostate cancer (7.3%) and stomach cancer (4.9%) [1, 4].

According to GLOBOCAN forecasts, by 2050, the number of new cancer cases could reach 35 million annually. This creates a serious need for significant investments in the prevention, early diagnosis, and treatment of cancer diseases [1].

Oncological diseases in Kazakhstan rank 7th among all diseases and 2nd in mortality after circulatory diseases. Today, more than 205 thousand patients with cancer are registered, and over 37 thousand new cas-

es are registered annually. The incidence among women is higher than among men (57% versus 43%) [5]. This is explained by the fact that breast cancer ranks first in the morbidity structure [6, 7]. Of those affected, 56% are working-age [8, 9].

Modern treatment methods have significantly increased patient survival in recent decades [10, 11]. However, methods such as chemotherapy and targeted therapy are associated with several systemic and ocular side effects that can seriously affect the patients' quality of life [12]. Mild or severe visual impairment can significantly hinder the performance of daily tasks and decrease the quality of life [13]. Therefore, careful monitoring and treatment of such complications by an ophthalmologist is necessary, especially in patients with pre-existing eye disease.

Chemotherapy and targeted therapy are associated with side effects such as photophobia, cataract, glaucoma, and retinopathy [14]. Some targeted drugs cause specific ocular side effects: imatinib can cause periorbital edema and epiphora, cetuximab can cause corneal damage and blepharitis, erlotinib can cause ocular

surface problems, and bevacizumab can cause thromboembolic complications [15, 16]. These effects develop due to cytotoxicity, inflammation, and neurotoxicity [17].

Thus, the study of dynamic assessment of the quality of life of patients who have visual impairment as a result of chemotherapy is relevant for increasing the effectiveness of complex therapy and improving the quality of life of patients. Including a dynamic assessment of visual functions in the general treatment of cancer will allow for the prediction of the consequences of chemotherapy and improve treatment planning by considering visual impairment. This, in turn, will help to ensure a more personalized approach to treatment, minimizing negative side effects and improving patients' quality of life.

The study aimed to explore the quality of life of cancer patients with visual impairments resulting from exposure to chemotherapy and targeted therapy, with special attention to the timing of visual complications, their severity, and reversibility.

Materials and methods: A structured literature search was conducted in the PubMed, Embase, Cochrane Library, Scopus, Web of Science, and Google Scholar databases using a combination of Medical Subject Headings (MeSH) and keywords related to chemotherapy, targeted therapy, visual impairment, and quality of life in patients with cancer. Key search terms included chemotherapy, targeted therapy, visual impairment, uveitis, retinopathy, quality of life, cancer treatment, side effects, and cancer patients. Studies published between January 2012 and December 2024 were considered to ensure data relevance. Inclusion criteria included meta-analyses, controlled and original studies, cross-sectional studies, systematic reviews, and case reports. Articles that did not have an evidence base were excluded. A total of 65 sources met the inclusion criteria. The search included peer-reviewed articles in English and Russian.

Results: Chemotherapy and targeted therapy drugs significantly impact the visual organ, causing direct

and indirect cytotoxic effects.

Direct cytotoxic effects include damage to ocular structures such as the conjunctiva, cornea, retina, and optic nerve with local and systemic administration of drugs. G. Wang et al. claim that methotrexate causes apoptosis in retinal cells, contributing to the development of retinopathy and neuropathy [18]. I. Ferah Okkay et al. found that alkylating agents such as cisplatin induce DNA damage and oxidative stress, which is clinically manifested by conjunctivitis, keratopathy, and uveitis [19]. Chemotherapy used in the treatment of malignant neoplasms can cause various complications in the visual organs. A study involving patients with brain gliomas receiving intra-arterial chemotherapy revealed the following ocular complications: retinal angiospasm was observed in 21.8% of patients, retrobulbar neuritis was noted in 12.7% of patients, neuroretinitis was detected in 10.9% of patients. In addition, decreased visual acuity was recorded in 25.5% of patients, absolute central scotoma in 12.7%, relative central scotoma in 14.5%, and concentric narrowing of the peripheral visual field in 7.3% of patients [20].

Indirect cytotoxic effects are associated with systemic toxicity of drugs, leading to inflammation and oxidative stress of the whole organism [21]. For example, 5-fluorouracil stimulates the production of proinflammatory cytokines (IL-6, TNF- α), which worsens the stability of the tear film and causes dry eye syndrome [22]. According to F. Canino et al., systemic inflammation and vascular dysfunction can impair the microcirculation of the eye, contributing to ischemia of the vessels of the eyeball and can further lead to retinopathy and optic neuropathy [23]. Understanding these mechanisms is of key importance for preventing and treating ocular complications in cancer patients, which helps improve their quality of life and vision.

Research into the ocular side effects of chemotherapy and targeted therapy focuses on identifying toxic effects on the eye, their impact on patients' quality of life, and developing assessment methods and treatment approaches.

Table 1 – Impact of ophthalmological side effects on quality of life during chemotherapy and targeted therapy

Characteristic	Chemotherapy	Targeted therapy
Toxic effects on the organ of vision	Dry eye syndrome, red eye, foreign body sensation, cataract, retinopathy, macular hole, optic neuropathy	Dry eye syndrome, conjunctivitis, uveitis, corneal changes, lower eyelid eversion
Ophthalmic impact on quality of life	Difficulty reading, driving, recognizing faces, discomfort, dry eye, decreased vision, vision loss	Difficulty reading, driving, recognizing faces, tearing, discomfort
Intervention measures	Treatment of the cornea and conjunctiva, regular vision, and fundus examinations. Collaboration between oncologists, ophthalmologists, and psychologists for a comprehensive approach to treatment	Treatment of the cornea and conjunctiva, regular vision examinations. Collaboration between oncologists, ophthalmologists, and psychologists for a comprehensive approach to treatment

Visual disturbances associated with chemotherapy and targeted therapy.

Chemotherapeutic drugs cause complications, including dry eye syndrome [20, 24], keratopathy [25],

cataracts, retinopathy, optic neuropathy [26, 27], and macular holes [28, 29] (Tables 1 and 2).

Carboplatin is considered less ocular toxic than its analog cisplatin, but it can still cause ophthalmological side

effects, especially at high doses or for long periods [30]. In contrast, cisplatin has greater toxicity to the retina and optic nerve, which can lead to the development of serious complications such as optic neuropathy or ischemic retinopathy. For example, S. Shihadeh et al. described a clinical case of a patient with neuroendocrine bladder cancer who developed rapidly progressive bilateral optic neuropathy during treatment with cisplatin. Despite the use of high doses of steroids, the patient's condition did not improve, which emphasizes the severity of this complication [30]. A similar case was described in a 16-year-old patient receiving cisplatin for the treatment of Hodgkin's lymphoma. The patient developed toxic optic neuropathy,

which led to significant vision loss. This case highlights the potential risk of ophthalmologic complications with cisplatin, especially in young patients, and the need for careful monitoring of the optic nerve during therapy [26]. A study by J. Kim et al. described a case of a 79-year-old man with small-cell lung cancer who developed irreversible bilateral vision loss after polychemotherapy with carboplatin and cisplatin. Examination revealed retinal artery stenosis, diffuse thinning of choroidal and retinal tissues, and retinal vascular ischemia. Polychemotherapy can lead to irreversible vision loss, which highlights the importance of physicians being aware of the potential ocular toxicity of these drugs [31].

Table 2 – Chemotherapeutic drugs and their toxic effects on the visual organ

Preparations	Indications for use	Clinical manifestations	An object of toxic action	Notes
Cisplatin	Cisplatin is used in the treatment of various malignant tumors.	Retrobulbar neuropathy, optic neuritis, color blindness, central blindness, homonymous hemianopsia, retinopathy, retinal vascular occlusion	Optic nerve and retina	Discontinuation of cisplatin treatment results in improvement of the condition
Carboplatin	Carboplatin is used to treat various malignant tumors but with better tolerability.	Blurred vision, changes in color perception, metamorphopsia, dry eye syndrome. Optic neuropathy (rare)	Cornea	It is recommended to monitor vision when carboplatin is prescribed, especially with long-term use.
Taxan	Drugs such as paclitaxel and docetaxel are used to treat breast, lung, and ovarian cancers.	Dry eye syndrome, cystoid macular edema, diplopia, eyelash alopecia, blepharitis, meibomian gland dysfunction, tubular obstruction	Lacrimal glands, cornea, meibomian glands, retina	If necessary, replacement with other drugs is possible.
Antimetabolites	Methotrexate and 5-fluorouracil are widely used in the treatment of various malignant tumors.	Corneal xerosis, lacrimal duct obstruction, punctate epithelial keratopathy, conjunctival hyperemia, blepharitis	Corneal epithelium, lacrimal duct obstruction, lacrimal drainage dysfunction	Regular ophthalmological examinations and treatment of lacrimal duct obstruction, prevention of xerosis

In a study by E. Cosmo et al., changes in the cornea in patients with breast cancer treated with paclitaxel were studied using confocal microscopy. The changes revealed resulted in eye discomfort and lacrimation, significantly reducing the patients' quality of life. The method made it possible to detect early changes in the corneal layers [24].

A similar study by JCB Chiang et al. confirmed that corneal nerve contraction may persist even after completion of chemotherapy. In vivo, corneal confocal microscopy is useful for monitoring corneal health in chemotherapy patients [32].

Like other treatments, targeted therapy may have side effects, including those affecting the eye. However, it is generally considered more specific and less toxic than chemotherapy. The effects of targeted therapy on the eye depend on the specific drug and its mechanism of action. Targeted therapy is often associated with conjunctivitis and corneal lesions [33] and, in rare cases, can lead to eversion of the lower eyelid [34]. These side effects significantly limit patients' daily activities, causing difficulties with reading, driving, and recognizing faces, and sometimes from decreased vision [35] to vision loss [31] (Tables 1 and 3).

Table 3 – Main toxic effects of targeted therapy drugs on the visual organ

Preparations	Toxic effect on the organ of vision	Clinical manifestations	Notes
EGFR and FGFR inhibitors	Retinopathy, corneal ulceration	Damage to the corneal epithelium, deterioration of visual acuity	The process improved after treatment was stopped.
Vandetanib, Osimertinib, ABT-414, ASP-5878, FPA-144	Corneal epithelial lesion	Deterioration of visual acuity, changes in the corneal epithelium	Reversibility of changes after cessation of therapy
Belamaf	Microcystic epithelial changes of the cornea	Corneal changes with microcystic lesions both centrally and peripherally	Reversibility of changes after cessation of therapy

D. Barmas-Alamdari et al. described the case of a 59-year-old woman with metastatic breast cancer who

developed crusting and a gritty sensation in both eyes. Ophthalmologic examination revealed multiple de-

fects, including corneal ulcers and ulcerations. The patient's eyes stabilized after discontinuing trastuzumab and treating the keratopathy [36].

Ophthalmological questionnaires.

In addition to ophthalmological complications, which can have a significant impact on the quality of life of patients receiving chemotherapy and targeted therapy, these treatments also have an impact on psychological health.

Patients often suffer from increased levels of depression, anxiety, and social isolation, which further impacts overall well-being and perceived quality of life [37, 38]. This is an important aspect to consider in a comprehensive assessment of the patient's condition during treatment.

Eye complications such as dry eyes, decreased vision, and other vision problems can increase anxiety and loneliness because they make it difficult to perform normal daily activities [37, 39–44].

In this context, introducing ophthalmological questionnaires and scales to assess the quality of life of patients undergoing chemotherapy is paramount.

These questionnaires allow an objective and quantitative assessment of treatment-related visual impairments and monitor the impact of visual impairments on patients' overall quality of life [45].

Questionnaires such as the National Eye Institute Visual Function Questionnaire (NEI VFQ-25)[46], Ocular Surface Disease Index (OSDI)[47], European Organization for Research and Treatment of Cancer Quality of Life questionnaires (EORTC-QLQ-C30 and EORTC-QLQ-MY20)[48] help to identify the most subtle changes in visual acuity and their changes.

Ophthalmological questionnaires such as OSDI and NEI-VFQ-25 can confirm the safety or risk of a drug for the eye by assessing eye symptoms and their impact on the patient's daily life [49]. They can detect changes in visual functions such as dryness, irritation, eye pain, and blurred vision. If the symptoms remain stable or improve during treatment, this may indicate the drug's safety. For example, in the study by R. Popat et al. within the DREAMM-2, questionnaires such as OSDI and NEI-VFQ-25 showed that visual impairment caused by bentamab was temporary. This confirms the drug's safety for the eye since most symptoms, such as temporary visual impairment, dryness, and eye pain, recovered within a few weeks without a long-term impact on the patients' quality of life [50].

VF-14 (Visual Function Index) questionnaire consists of 18 questions covering 14 types of daily visual activities. The results allow us to determine the patient's subjective assessment of visual functions.

The ADVS (Activities of Daily Vision Scale) includes 21 questions that assess aspects such as night and day vision, distance and near vision functions, and contrast perception. It was originally developed for cat-

aract patients but can be adapted to assess other visual impairments.

An example of the application of these questionnaires is the study by J. Ma et al., who used two questionnaires to assess dry eye symptoms and adverse effects of cancer therapy in breast cancer patients: the OSDI and the National Comprehensive Cancer Network Breast Cancer Symptom Index-16 (NFBISI-16). The OSDI questionnaire was administered to all participants to assess the severity of dry eye, and the NFBISI-16 was administered specifically to those undergoing cancer treatment to assess therapy-related symptoms. The results showed that 59% of breast cancer patients undergoing chemotherapy or targeted therapy experienced symptomatic dry eye, which was significantly higher compared to 25.5% in the control group. The study highlights the importance of monitoring dry eye symptoms in patients receiving chemotherapy or targeted therapy and recommends early intervention to improve their quality of life during treatment. General questionnaires are also used to assess the quality of life of cancer patients: **FACT-G (Functional Assessment of Cancer Therapy – General)**, designed for a general assessment of the quality of life of patients with cancer, covers physical, social, emotional and functional well-being; **EORTC QLQ-C30 (European Organization for Research and Treatment of Cancer Quality of Life Questionnaire)** is a widely used tool for assessing the quality of life of cancer patients, including 30 questions covering various aspects of health and well-being. Regularly using these monitoring methods will allow for timely detection and correction of ophthalmological complications arising from chemotherapy, as well as ensuring optimal quality of life for patients.

Validation of dynamic assessment questionnaires designed specifically to assess vision-related quality of life in patients undergoing chemotherapy and targeted therapy will require additional research. Considering the complex interactions between variables affecting quality of life requires multidisciplinary strategies.

It is necessary to note the possible methods of correction of complications from the organ of vision during chemotherapy, which require a comprehensive approach to correction, including drug therapy, physiotherapeutic methods, and surgical interventions (Table 4).

General correction methods include dynamic monitoring (regular ophthalmologist examinations once every 3 months during chemotherapy), optical coherence tomography (OCT) is also performed to assess the retina and optic nerve condition, and fluorescent angiography to monitor vascular changes. It is necessary to correct chemotherapy doses in the treatment of the underlying disease in case of severe side effects and conduct maintenance therapy to reduce the toxic effects of drugs.

Table 4 – Methods of correction of complications from the organ of vision during chemotherapy

Correction form	Method
Correction of vascular disorders (angiospasm, retinopathy, retinal microangiopathy)	antioxidants and angioprotectors, drugs to improve vascular tone, corticosteroids (for severe retinal edema), physiotherapeutic methods (laser coagulation of the retina for diabetes-like changes, magnetic therapy to improve vascular tone)
Correction of neuropathies (retrobulbar neuritis, neuroretinitis)	neuroprotectors and B vitamins, glucocorticosteroids (for inflammatory changes), anticoagulants and antiplatelet agents, physiotherapeutic methods (electrical stimulation of the optic nerve, acupuncture to stimulate nerve activity)
Correction of dry eye and corneal lesions (keratopathy, epitheliopathy, dry eye syndrome)	artificial tears, anti-inflammatory agents, regenerating agents, antibacterial drops (if there is a risk of infection), physiotherapeutic methods (light therapy and laser stimulation of corneal regeneration)
Correction of central and peripheral visual impairments (central and paracentral scotoma, narrowing of visual fields)	retinal metabolism stimulants, drugs to improve hemodynamics, physiotherapeutic methods (laser exposure to the retina to stabilize the process, training using computer programs to restore visual fields)

Conclusion: Survival of patients with cancer has improved significantly due to the development of anti-cancer drugs, including systemic chemotherapeutic agents. However, long-term side effects, including visual impairment, can significantly affect the quality of life of these patients. The lack of specific recommendations for ocular monitoring during chemotherapy and targeted therapy exacerbates the problem, as such drugs can cause serious visual complications that remain underestimated.

Comprehensive correction of ophthalmological complications during chemotherapy should include drug therapy, physiotherapeutic methods, and regular vision monitoring. Early diagnosis and timely treatment help minimize the risks of persistent visual impairment and maintain patients' quality of life.

Dynamic quality of life assessment represents a promising approach to understanding and addressing visual impairment in patients receiving chemotherapy and targeted therapy. Given the temporal variations and contextual factors that influence quality of life, these methods open the door to personalized interventions that can improve treatment outcomes. As vision-specific quality-of-life assessment tools, Ophthalmology questionnaires have significant potential to improve care and well-being in this vulnerable patient population.

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АНДАТПА

ХИМИОТЕРАПИЯ АЛҒАН НАУҚАСТАРДЫҢ КӨРУ ҚАБІЛЕТІНІҢ БҰЗЫЛУЫМЕН БАЙЛАНЫСТЫ ӨМІР САПАСЫН ДИНАМИКАЛЫҚ БАҒАЛАУ

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Өзектілігі: Онкологиялық ауруларды емдеуде қолданылатын химиотерапия және мақсатты терапия жиі көру функциясына әсер ететін жанама әсерлерді тудырады. Мұндай асқынуларға құрғақ көз синдромы, катаракта, кератопатия, ретинопатия және басқалар жатады, бұл пациенттердің өмір сүру сапасын айтарлықтай нашарлатуы мүмкін. Бұл мақалада көру қабілетінің бұзылуы бар онкологиялық науқастардың өмір сапасын бағалауға және осы жанама әсерлерді бақылаудың маңыздылығына баса назар аударылады.

Мақаланың мақсаты: көру асқынуларының пайда болу уақытына, олардың ауырлығына және қайтымдылығына ерекше назар аудара отырып, химиялық және мақсатты терапияның әсерінен туындайтын көру қабілеті бұзылған онкологиялық науқастардың өмір сүру сапасын зерттеу.

Әдістері: Зерттеуге 2012-2024 жылдар аралығында PubMed, Embase, Cochrane Library, Scopus, Web of Science және Google Scholar дерекқорларында жарияланған орыс және ағылшын тілдеріндегі 65 ғылыми мақалаға талдау жасалды. Іздеу кезінде химиотерапия, көру уыттылығы және қатерлі ісікке қатысты негізгі сөздер қолданылды. Зерттеуге мета-талдаулар, жүйелі шолулар, бақыланатын клиникалық зерттеулер және жеке жағдай есептері кірді.

Нәтижелері: Цисплатин және паклитаксел сияқты химиотерапевтік препараттар құрғақ көз синдромы, қызыл көз, катаракта және ретинопатия сияқты көру бұзылыстарын тудырады. Бевацизумаб және эрлотиниб сияқты мақсатты препараттар қасаң қабықтың зақымдануын, конъюнктивит пен увеитті тудырады. Көру қабілетінің бұзылуы пациенттердің өмір сүру сапасын айтарлықтай нашарлатады, оқу, көлік жүргізу және бет-әлпетті тану сияқты күнделікті тапсырмаларды орындауда қиындықтар тудырады. Бұл бұзылулар сонымен қатар ыңғайсыздықты, құрғақ көзді, жасты тудырады және көру өткірлігінің төмендеуіне әкелуі мүмкін. Сирек жағдайларда мұндай бұзылулардың салдары көру қабілетінің ішінара немесе толық жоғалуына әкеледі, бұл пациенттің әлеуметтік жұмысына және эмоционалдық жағдайына елеулі әсер етеді. Арнайы офтальмологиялық сауалнаманы қолдану жанама әсерлерді ерте анықтауға мүмкіндік береді, бұл пациенттердің өмір сапасын жақсартуға көмектеседі.

Қорытынды: Өмір сүру сапасын динамикалық бағалау химиотерапия мен мақсатты терапияны алатын пациенттердегі көру қабілетінің бұзылуын түсінуге және шешуге перспективалы көзқарасты білдіреді. Өмір сапасына әсер ететін уақытша өзгерістер мен контекстік факторларды ескере отырып, бұл әдістер емдеу нәтижелерін жақсартатын жеке араласуға жол ашады.

Түйінді сөздер: химиотерапия, мақсатты терапия, көру қабілетінің бұзылуы, өмір сапасы.

АННОТАЦИЯ

ДИНАМИЧЕСКАЯ ОЦЕНКА КАЧЕСТВА ЖИЗНИ, СВЯЗАННОГО С НАРУШЕНИЕМ ЗРЕНИЯ У БОЛЬНЫХ, ПОЛУЧАЮЩИХ ХИМИОТЕРАПИЮ

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Актуальность: Химиотерапия и таргетная терапия, используемые при лечении рака, нередко сопровождаются побочными эффектами, которые затрагивают зрительную функцию. Среди таких осложнений – синдром сухого глаза, катаракта, кератопатия, ретинопатия и другие, которые могут значительно ухудшить качество жизни пациентов. В данной работе акцент сделан на оценке качества жизни онкологических больных, испытывающих зрительные нарушения, и важности мониторинга этих побочных эффектов.

Цель исследования – изучить качество жизни онкобольных с нарушениями зрения, возникающими в результате воздействия химио- и таргетной терапии, с особым акцентом на времени возникновения зрительных осложнений, их выраженности и обратимости.

Методы: В рамках исследования был проведен анализ 50 научных статей на русском и английском языках, опубликованных в базах данных PubMed, Embase, Cochrane Library, Scopus, Web of Science и Google Scholar с 2012 по 2024 годы. Для поиска использовались ключевые слова, связанные с химиотерапией, токсическими воздействиями на зрение и злокачественными новообразованиями. В исследование были включены метаанализы, систематические обзоры, контролируемые клинические испытания и индивидуальные клинические случаи.

Результаты: Химиотерапевтические препараты, такие как цисплатин и паклитаксел, вызывают зрительные нарушения, включая синдром сухого глаза, покраснение глаз, катаракту и ретинопатию. Таргетные препараты, такие как бевацизумаб и эрлотиниб, приводят к повреждению роговицы, конъюнктивиту и увеиту. Зрительные нарушения значительно ухудшают качество жизни пациентов. Эти нарушения также вызывают дискомфорт, сухость в глазах, слезотечение и могут привести к снижению остроты зрения. В редких случаях последствия таких нарушений приводят к частичной или полной потере зрения, что серьезно сказывается на социальном функционировании и эмоциональном состоянии пациента. Использование специальных офтальмологических опросников позволяет на ранних стадиях выявить побочные эффекты, что способствует улучшению качества жизни пациентов.

Заключение: Динамическая оценка качества жизни представляет собой перспективный подход для понимания и решения проблемы зрительных нарушений у пациентов, получающих химиотерапию и таргетную терапию. Учитывая временные колебания и контекстуальные факторы, влияющие на качество жизни, эти методы открывают путь для персонализированных вмешательств, которые могут улучшить результаты лечения.

Ключевые слова: химиотерапия, таргетная терапия, нарушения зрения, качество жизни.

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