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ADVANCED APPROACHES TO THE TREATMENT OF PSORIASIS. LITERATURE REVIEW

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Abstract

Introduction: Psoriasis is a chronic inflammatory skin disease. In addition to affecting the skin, the condition is characterized by complications such as joint and nail involvement and is associated with systemic disorders including obesity, hypertension, cardiovascular diseases, and kidney disorders. These comorbidities and symptoms influence treatment choices. Therefore, it is important to find an appropriate therapeutic approach that leads to improvement and, ideally, complete recovery from the disease.

Objective: The aim of this literature review is to analyze current methods of psoriasis treatment, with a focus on efficacy, safety, and the potential for personalized therapy.

Search Strategy: The literature search was conducted in databases including PubMed, Medline, Embase, and Cochrane. The results were then sorted, screened by title, and irrelevant studies were excluded. The search covered a period of 7 years, from 2018 to 2025.

Results: Psoriasis affects at least 60 million people worldwide. Clinically, it presents as red, scaly plaques on the skin, which may appear on various parts of the body and cause significant physical and psychological burden. Moreover, the disease may pose a serious threat to the patient due to its involvement of vital organs and systems, including cardiometabolic disorders, psoriatic arthritis, and depression—all of which negatively impact quality of life. Psoriasis is an immune-mediated inflammatory skin disease. The IL-23/IL-17 axis plays a key role in its pathogenesis. The efficacy of biological therapies such as IL-23 inhibitors (ustekinumab, guselkumab, tildrakizumab, risankizumab) and IL-17 inhibitors (secukinumab, ixekizumab, brodalumab) supports this understanding. In our publication, we describe an approach to managing patients with psoriasis across the entire disease spectrum—from mild to moderate and severe forms—aiming to create a positive healing dynamic and improvement in condition, while ensuring efficacy and safety through personalized treatment tailored to the patient's needs.

Conclusions: In our study, we propose possible approaches to restoring immune homeostasis through a combined, personalized strategy that includes early intervention with biologic agents, advanced therapeutic techniques, and lifestyle modifications.

Keywords: *Psoriasis, therapy, treatment goals, treatment efficacy, biologic agents*

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Резюме

ПЕРЕДОВЫЕ ПОДХОДЫ К ЛЕЧЕНИЮ ПСОРИАЗА. ОБЗОР ЛИТЕРАТУРЫ

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Введение: Псориаз – это хроническое воспалительное заболевание кожи. Помимо поражения кожного покрова, заболевание характеризуется и осложнениями, такими как поражение суставов и ногтей, ассоциируется с системными расстройствами: ожирение, гипертония, сердечно-сосудистые заболевания, заболевания почек. Эти сопутствующие патологии и симптомы влияют на выбор лечения. Поэтому важно найти правильный подход к терапевтическим действиям, приводящим к улучшению состояния и желательно к полному излечению этого заболевания.

Цель исследования: данного литературного обзора является анализ современных методов лечения псориаза с акцентом на эффективность, безопасность и возможности индивидуализации терапии

Стратегия поиска: Поиск литературы проводился в базах данных PubMed, Medline, Embase и Cochrane, после чего результаты были отсортированы, отобраны по заголовкам и исключены нерелевантные исследования. Глубина поиска составила 7 лет, с 2018 по 2025 г.г.

Результаты: Заболевание псориаз затрагивает не менее 60 миллионов человек среди всех стран по всему миру. Клинически оно проявляется высыпаниями в виде красных, чешуйчатых бляшек на коже, способными появляться на различных участках тела и вызывающими значительную физическую и психологическую нагрузку, помимо этого болезнь может представлять опасность для пациента, связанное с поражением жизненно-важных органов и систем человека, таких как кардиометаболические нарушения, псориатический артрит и депрессия, которые также влияют на качество жизни человека. Псориаз – это воспалительное заболевание кожи, опосредованное иммунными клетками. Ось интерлейкинов IL-23/IL-17 играют важную роль в развитии псориаза. Эффективность биологических препаратов, таких как ингибиторы IL-23 (устекинумаб, гуселькумаб, тильдакизумаб, рисанкизумаб) и ингибиторы IL-17 (секукинумаб, иксекизумаб, бродалумаба) подтверждает эти данные. В нашей публикации мы описываем подход к лечению пациентов с псориазом по всему спектру – от легких до умеренных и тяжелых форм, создание положительной динамики процесса заживления и улучшения состояния, а также эффективности и безопасности подбора лечения индивидуально с учётом потребностей пациента

Выводы: В нашем исследовании мы предлагаем возможные пути при восстановлении иммунного гомеостаза посредством комбинированного, персонализированного подхода, включающего раннее вмешательство с применением биологических препаратов, передовые терапевтические методы и изменение образа жизни

Ключевые слова: *Псориаз, терапия, цели лечения, эффективность лечения, биологические препараты.*

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Түйіндеме

ПСОРИАЗДЫ ЕМДЕУДІҢ ЗАМАНАУИ ТӘСІЛДЕРІ ӘДЕБИЕТТІК ШОЛУ

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Кіріспе: Псориаз – бұл терінің созылмалы қабыну ауруы. Тері жамылғысының зақымдануымен қатар, бұл ауру буындар мен тырнақтардың зақымдануы сияқты асқынулармен сипатталады және жүйелі бұзылыстармен: семіздік, гипертония, жүрек-қантамыр аурулары, бүйрек ауруларымен байланысты. Бұл қатар жүретін патологиялар

мен симптомдар емдеу әдістерін таңдауға әсер етеді. Сондықтан бұл аурудың жағдайын жақсартуға және мүмкін болса толық емделуге әкелетін терапиялық шараларға дұрыс көзқарас табу маңызды.

Зерттеу мақсаты: Псориазды емдеудің қазіргі әдістерін тиімділік, қауіпсіздік және емдеуді жекелендіру мүмкіндіктеріне ерекше назар аудара отырып талдау.

Іздеу стратегиясы: Әдебиеттерді іздеу PubMed/Medline, Embase және Cochrane Library дерекқорларында, сондай-ақ диагностикалау мен емдеудің стандарттары бойынша электрондық дерекқорларда: Қазақстан Республикасының клиникалық хаттамалары, клиникалық ұсынымдары және клиникалық басшылықтарында жүргізілді. Нәтижелер сұрыпталып, тақырыптары бойынша таңдалып алынып, маңызсыз зерттеулер алынып тасталды. Іздеу терең дігі 7 жылды қамтыды – 2018 жылдан 2025 жылға дейін.

Нәтижелер: Псориаз ауруы бүкіл әлем бойынша кемінде 60 миллион адамға әсер етеді. Клиникалық түрде бұл терінің әртүрлі бөліктерінде пайда болатын қызыл, қабыршақты дақтар түрінде бөртпелермен көрінеді және айтарлықтай физикалық және психологиялық ауыртпалық тудырады. Бұдан бөлек, бұл ауру өмірлік маңызды ағзалар мен жүйелерге әсер ету арқылы науқас үшін қауіпті болуы мүмкін, мысалы, кардиометаболикалық бұзылыстар, псориатикалық артрит және депрессия, олар да адамның өмір сапасына әсер етеді.

Псориаз – бұл иммундық жасушалармен делдалданатын қабыну тері ауруы. IL 23/IL 17 интерлейкин осі псориаздың дамуында маңызды рөл атқарады. IL 23 ингибиторлары (устекинумаб, гуселькумаб, тильдакизумаб, рисанкизумаб) және IL 17 ингибиторлары (секукинумаб, иксекизумаб, бродалумаб) сияқты биологиялық препараттардың тиімділігі бұл деректерді растайды.

Біздің жарияланымда біз псориазбен ауыратын науқастарды емдеуге деген көзқарасты жеңілден бастап орташа және ауыр түрлеріне дейін сипаттаймыз. Жазылу процесінде оң динамикаға және жағдайды жақсартуға, сондай-ақ емдеуді пациенттің қажеттіліктерін ескере отырып тиімді және қауіпсіз таңдауға назар аударамыз.

Қорытынды: Біздің зерттеуімізде біз иммундық гомеостазды қалпына келтірудің ықтимал жолдарын ұсынамыз. Бұл жолдарға биологиялық препараттарды ерте қолдану, озық терапиялық әдістер және өмір салтын өзгерту сияқты біріктірілген, жекелендірілген тәсіл жатады.

Түйінді сөздер: *Псориаз, терапия, емдеу мақсаттары, емдеу тиімділігі, биологиялық препараттар.*

Дәйексөз үшін:

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Introduction

Psoriasis is an undulating, chronic, immune-inflammatory skin disease due to genetic predisposition. The prevalence of the disease in the world is about 2%, in more developed countries exceeds 4,6%. For example: in Western countries and among people of European origin: in Norway – 4,6%, Portugal – 4,4%, France - 4,42%, in the UK it affects 1,52%. The incidence is influenced by factors such as country location, ethnic composition and amount of sunlight. The incidence is highest (4-8%) in Northern Europe and lowest in some South American countries. In the United States, psoriasis affects about 2,6% of the population, which corresponds to about 6,4 million people. Between 150,000 and 260,000 new cases are reported each year. The disease can occur in people of all ages, and there is a bimodal age distribution: early onset (from 16 years of age in females, from 22 years of age in males) and late onset (from 57 years of age in males, from 60 years of age in females). Genetic predisposition plays an important role, but the inheritance of psoriasis is complex and can be either monogenic or multifactorial. Psoriasis is a skin disease with several phenotypically distinct subtypes, such as plaque, inverse (flexural), guttate (drop-shaped), pustular, or erythrodermic. It is a disease that negatively affects both quality of life and life expectancy and can manifest complications such as: cardiometabolic disorders, psoriatic arthritis and depression. In addition to the fact that it is sometimes difficult to decide on the conventional treatment of this disease, as the etiology cannot always be determined, additional comorbidities require a holistic and multidisciplinary approach to treatment [1, 2, 63, 64].

Nowadays, with the development of medical trends and technologies, methods are emerging that allow curing diseases that were previously incurable, such as some cancers. Traditionally, the term "cure" is applied to the complete disappearance of the disease both in the manifestation of the clinical picture and at the molecular level, and the effect persists after treatment is discontinued. In severe courses of psoriasis, some patients achieve prolonged suppression of the disease and improvement in the patient's condition, but relapse can unfortunately occur after treatment withdrawal [1, 2, 37].

Improvement of the general condition in psoriasis patients is possible by restoring immune homeostasis using a combined, individualized approach in medicine, applying advanced therapeutic solutions and taking into account lifestyle modification [37].

Psoriasis is genetically predetermined, as 109 genetic loci have been identified predisposing to psoriasis [37, 17] - but there are no genetic markers predicting either spontaneous resolution of the disease (as in "gutta" psoriasis) or its severity. Purely hereditary factors can only explain about 28% of cases, indicating the involvement of additional genetic variants, gene-gene interactions and epigenetic modulation of gene transcription when an individual is exposed to environmental triggers such as streptococcal infection, medications, stress, smoking, alcohol and obesity [1, 36]. This leads to a complex

interaction between innate and adaptive immunity. T lymphocytes, dendritic cells (DCs), keratinocytes and fibroblasts play a key role in the IL-23/T17 axis underlying the pathogenesis of psoriasis [22, 29].

In recent years, with the emergence of highly effective and well tolerated biologic drugs, there has been a trend towards a change in the medication approach to psoriasis. Naturally, this is due to such factors as: reduction in the duration of the disease course, rapid recovery of the general condition, subsequently affecting the lifestyle and quality of life, as well as the manifestation of fewer side effects of the drugs themselves or intolerance to the current treatment. Previously, switching therapy was often undertaken to limit the cumulative effects of traditional systemic agents (e.g., methotrexate, cyclosporine) to reduce the risk of damage to vital organs. Pharmacovigilance registries indicate that more than 27,000 patients worldwide are receiving biologic therapy for psoriasis [69, 60, 62]

In the current environment, efforts are being made to achieve near-complete skin clearance with minimal side effects for most patients with moderate to severe psoriasis, and considerations for changing therapy are shifting toward maximizing skin clearance, quality of life, and patient satisfaction. In our publication, we wanted to emphasize the points of application in the treatment of psoriasis of the latest clinical guidelines, the use of new therapeutic approaches, including biologics, and the difficulties associated with the transition from one drug to another, based on the position of evidence-based medicine, clinical experience of specialists and taking into account individual approaches to psoriasis patients [64].

Objective: analysis of modern methods of psoriasis treatment with emphasis on efficacy, safety and possibilities of individualization of therapy

Search Strategy:

When conducting a literature search, we reviewed PubMed / Medline, Embase and Cochrane Library databases, as well as we relied on the electronic database of diagnostic and treatment standards: clinical protocols, clinical recommendations, clinical guidelines of the Republic of Kazakhstan. As a result of the search, publications in Russian and English were found and analyzed, the search depth was 7 years, from 2018 to 2025. In the process of the search 286 scientific articles were found, the articles were mainly foreign and in English. The process of the information search strategy is depicted in more detail in Figure 1.

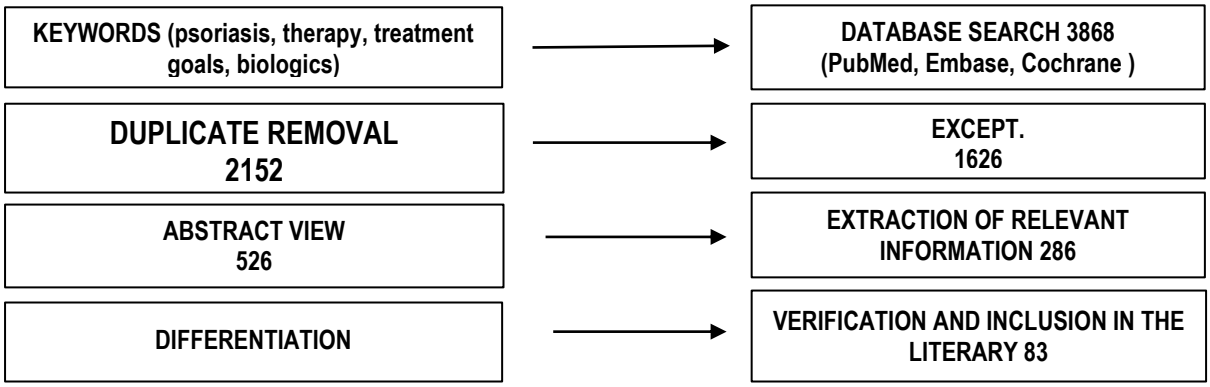

Figure 1. Scheme for analyzing a literature review.

The objectives of our study were met: *inclusion criteria:* review articles, meta-analyses, studies that included patients with psoriasis, scientific studies that evaluated diagnostics and new therapies for psoriasis, updates on therapeutic options, articles published between 2018 and present, dissertations. *Exclusion criteria*: studies that did not specify diagnostic and therapeutic approaches in patients with psoriasis or studies with low methodological quality, abstracts, newspaper articles, summary reports. The search resulted in 83 publications included in this review.

Results

When considering treatment approaches for psoriasis, depending on the lesion and localization of the skin sites, as well as the different forms of the course of the disease, including chronic, a wide range of methods are used, representing topical treatment, phototherapy, older small-molecule systemic agents (e.g., methotrexate, cyclosporine, acitretin, and fumaric acid esters in Europe), a new oral phosphodiesterase-4 inhibitor (apremilast), and biologic agents (etanercept, adalimumab, infliximab, and ustekinumab). Despite the availability of numerous highly effective and well-tolerated treatments, psoriasis often remains under-treated: patients do not achieve significant skin clearance, symptom relief, and improved quality of life. This under-treatment is accompanied by a high degree of patient dissatisfaction and is due, in part, to the reluctance of specialists to initiate or adjust systemic therapy in patients with moderate to severe psoriasis. As a result, many patients remain on ineffective or poorly tolerated regimens for long periods of time, which can lead to persistent inflammation, worsening skin symptoms, and the development of comorbidities (e.g., psoriatic arthritis, metabolic syndrome, and cardiovascular disease) [28, 64, 63, 5, 68, 66].

Pathogenesis and significance for therapy

The pathogenesis of psoriasis is multifactorial and the potential pathologic mechanism involves complex interactions between the adaptive and innate immune systems. The current understanding of psoriasis pathogenesis is based on the activation of innate and adaptive immunity, especially Th1- and Th17-cells. IL-17, IL-23, and TNF-α play key roles in the development of

inflammation. In particular, relatively recent discoveries regarding the influence of the interleukin (IL)-17/23 axis on the course and development of psoriasis have led to the development of biologic agents that specifically bind the cytokines IL-17 and IL-23 and/or their receptors. Their use has demonstrated high efficacy in severe forms of the disease [4].

Current therapeutic targets and new drugs

Given modern approaches to the goal of therapeutic effect in psoriasis, treatment tactics have changed from symptom reduction to achieving clear skin and prolonged remission. Drugs have been developed that target molecular targets including IL-17 and IL-23. New biologics such as bimekizumab and deucravacitinib, which show significant clinical *improvement with high safety [80].*

Local treatment

Depending on the severity of the disease, appropriate treatment may be initiated. In mild to moderate disease severity, first-line treatment includes topical therapy, including corticosteroids, vitamin D3 analogs, and combination products. Their efficacy depends on the extent of skin lesions, localization, and adherence to the application regimen [39]. These topical therapies are effective and can be safely initiated and prescribed by primary care physicians. Patients with more severe and refractory symptoms may require further evaluation by a dermatologist for systemic therapy. Their use has demonstrated high efficacy in severe forms of the disease [75].

Phototherapy

Phototherapy is used for moderately severe forms of psoriasis and includes narrowband UVB 311 nm, PUVA therapy. These methods are safe and effective, especially in extensive skin lesions. They are often used in combination with topical medications [39].

Systemic therapy

Systemic therapy includes classic systemic drugs - methotrexate, cyclosporine, acitretin, which are used in severe forms. They have an immunosuppressive effect, require laboratory control due to possible toxicity. Methotrexate remains one of the standards of therapy due to its effectiveness and availability.

Biologicals

However, current biologic drugs target key inflammatory mediators: TNF-α, IL-17, and IL-23. Secukinumab, ixekizumab, and bimekizumab (IL-17A and IL-17F inhibitors) have demonstrated high efficacy in achieving remission on the PASI 75/90/100 scale. Ustekinumab and guselkumab (IL-23 inhibitors) provide sustained remission and have a high safety profile. Biologic therapy has become the mainstay of treatment in patients with resistant forms of psoriasis [12]. The advent of JAK inhibitors such as tofacitinib has opened new possibilities, especially for oral administration. However, questions remain about the long-term safety of these drugs.

The use of nanoformulations of drugs that can increase the penetration of active ingredients across the epidermal barrier is being investigated. In addition, phytotherapy (curcumin, aloe vera, indigo natural) has shown moderate efficacy in pilot studies. However, more clinical data are needed. Personalized approach is one of the key areas: based on biomarkers and genetic profiles, it is possible to determine the most appropriate therapy for a particular patient [12].

Treatment tactics and approaches

In order to improve the tactics and approaches to treatment, criteria were developed to determine the observation and dynamic changes in the disease processes, which included experts from 19 European countries. Treatment success is defined as achieving at least 75% reduction in the Psoriasis Area and Severity Index (PASI 75) from the start of therapy [1,5]. Intermediate response is characterized by a 50-75% reduction in PASI and a dermatology quality of life score (DLQI) of 5 or less. The assessment of psoriasis severity by skin lesion area (BSA) is presented in Table 1.

Table 1

Assessment of psoriasis severity by the area of skin lesions:

Light	Medium	Heavy
BSA (0-5%)	BSA (5-10%) PASI < 10	BSA > 10% PASI >10
DLQI < 5	DLQI (5-10)	DLQI (>10)
no problem areas	problem areas	problem areas

Then it is necessary to monitor the positive dynamics of cure of patients for at least 2 months, if there is no effect, it is recommended to change the treatment [5]. The British Association of dermatologists [65], the National Institute for Health and Clinical Effectiveness [81, 23], the European Medicines Agency [36], and the Australian consensus [68] all put forward similar goals. The management of new psoriasis medications in the United States is also based on these endpoints. At the same time, some guidelines (e.g., National Psoriasis Foundation) oppose the use of numerical thresholds to assess response and suggest that treatment should be evaluated based on the patient's own perception of the disease [42]. Depending on the severity of the disease process itself, namely chronic or severe courses of psoriasis, considering modern approaches where patient satisfaction and well-being are important criteria [7,54,72,58,78], the use of biologic agents show the achievement of PASI 100 results (complete clearance) can be achieved in many patients with the use of new (e.g. brodalumab, ixekizumab) or recently approved (secukinumab) drugs targeting interleukin-17 inhibition [64,72,58,78,].

For example, Japanese scientists studied studies that found that low doses of methotrexate had an anti-inflammatory effect by increasing adenosine levels and modulating immune cells [71,31]. The PASI75 after 12 weeks with methotrexate treatment was 45.2% [82].

When cyclosporine was used in the treatment of psoriasis, the PASI75 after 10-16 weeks at doses of 5 mg/kg and 2.5 mg/kg was 50-97% and 28-85%, respectively [7].

Therapy with IL-23, IL-17 inhibitors, on the other hand, have shown such results. IL-23 inhibitors available for the treatment of psoriasis include ustekinumab, guselkumab, risankizumab, and tildrakizumab. After 12 weeks, the PASI75 for ustekinumab (45 mg and 90 mg) was 67.5% and 73.8%, respectively [59]. After 16 weeks, the PASI 75/90/100 rates were 91.2%/73.3%/37.4% for guselkumab (100 mg) and 90.8%/74.8%/50.7% for risankizumab (150 mg) [39, 40]. After 28 weeks, for tildrakizumab (100 mg), the rates were 77%/54%/23% [10].

Secukinumab, ixekizumab, and brodalumab are IL-17 inhibitors used to treat psoriasis. After 12 weeks, PASI75/90/100 rates were 77.1%/54%/24% for secukinumab (300 mg), 90%/70%/40% for ixekizumab (80 mg after an initial dose of 160 mg), and 83%/70%/42% for brodalumab (210 mg), respectively [71, 83, 20].

In our country, treatment is inclined to clinical protocols [3], where it is recommended to adhere to systemic immunosuppressants (cyclosporine, methotrexate) [15,56,51], registered in the indications as "first line therapy of psoriasis". Selective immunosuppressants are prescribed for moderate to severe course of plaque psoriasis. Selective immunosuppressants can be used as second-line drugs (in the absence of clinical effect from the use of traditional / basic anti-inflammatory drugs, or in cases of intolerance or contraindications to their use). In the presence of contraindications to the use of basic anti-inflammatory drugs or in the presence of a combination of several criteria of psoriasis severity (high PASI score >10, DLQI >10, localization of psoriatic rashes in problematic anatomical areas, joint involvement, presence of relevant comorbid pathology), can be used as first-line drugs [57,18,48,47,31,79].

Selective immunosuppressants [33,24,26,44,76,10] include: the phosphodiesterase-4 inhibitor apremilast, the Janus kinase blocker tofacitinib, as well as immunosuppressants that are genetically engineered biological drugs according to the method of production - tumor necrosis factor alpha (TNF-alpha) inhibitors, interleukin 12/23, 17, 23 inhibitors [6,21].

Individualization of therapy and patient preferences

Individualization of therapy and patient preferences should be taken into account when selecting treatment. Patients evaluate not only clinical efficacy, but also convenience of use, frequency of administration, and side effects. Studies show that treatment satisfaction is higher with the use of biologics. This is important to consider when choosing a therapy. [25,37,19].

Patient **management algorithm**

Dermatologists after making a clinical diagnosis, taking into account the localization of rashes, the prevalence of the process, laboratory values and determining the severity of the disease recommend further therapeutic measures. In milder forms prescribe topical treatment in the form of external therapy, and in moderately severe course of systemic drugs, numerous rashes and severe course or complications already genetically engineered biological drugs immunosuppressants.

Fig. 2 shows the algorithm of management of a patient with psoriasis disease, where after collecting anamnesis, clinical picture, diagnostic procedures, establishing severity of the disease specialists determine the tactics of treatment depending on the effectiveness of therapeutic action and improvement of the patient's condition.

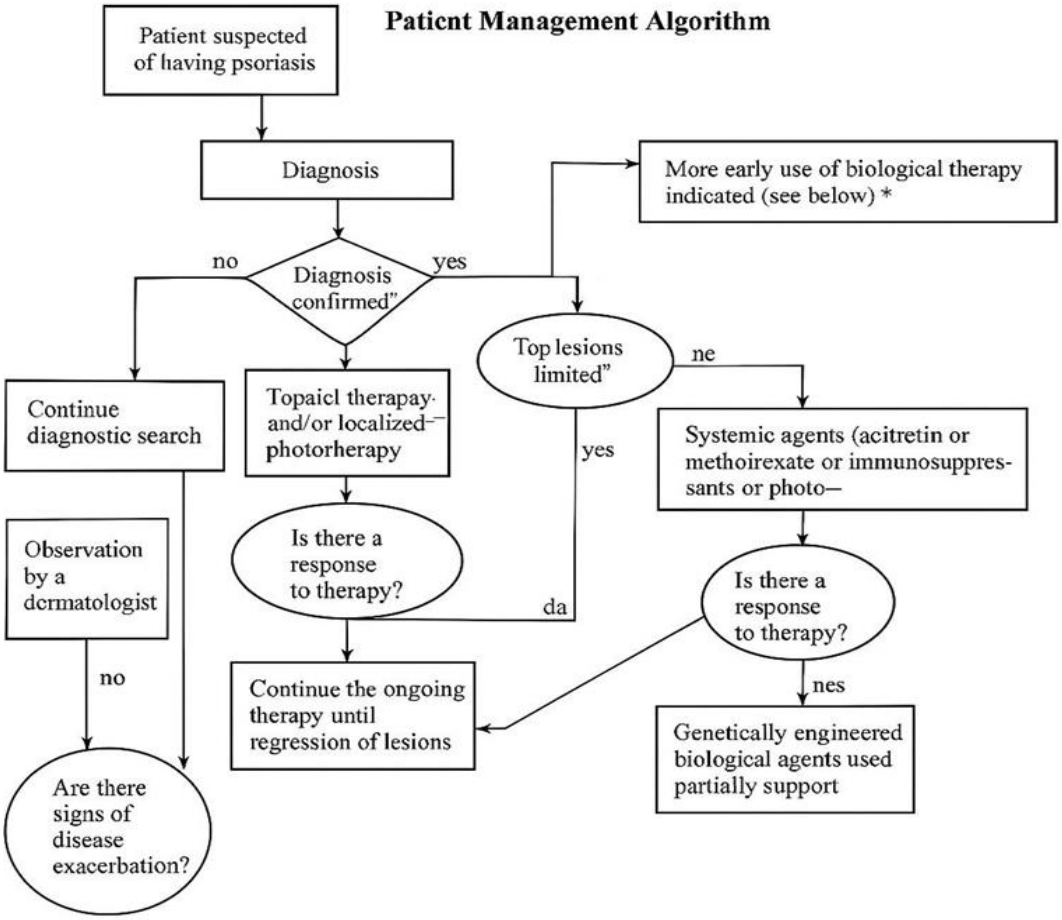

Figure 2: Algorithm of patient management.
(Clinical Protocols of the MH RK - 2022 (Kazakhstan)
https://diseases.medelement.com/disease/%D0%BF%D1%81%D0%BE%D1%80%D0%B8%D0%B0%D0%B7-%D0%BA%D1%80-%D1%80%D0%BA-2022/17436)

• **Combinations of therapeutic drugs**

• US and European guidelines recommend the use of a combination of biologics, oral agents, and phototherapy for patients with moderate to severe psoriasis [37,32,35]. The National Psoriasis Foundation guidelines, the European Academy of Dermatology guidelines, and the American Dermatology Association guidelines recommend such approaches, which may reduce the risk of resistance to one of the treatments when using a combination of therapies.

Biologics have demonstrated higher efficacy compared to oral agents or phototherapy [4,27].

The development of small-molecule drugs, personalized therapy based on biomarkers, and gene therapy are promising directions in the treatment of psoriasis. New drugs are being actively developed, including combination therapy regimens [50,34,49].

Despite the availability of effective biologic drugs, most patients in real practice receive traditional means. This is due to price, availability, and insurance companies' policy. It is important to educate physicians and patients about the possibilities of modern therapy [13,46].

Discussion:

In our study, studying the material of application of various approaches of therapy, including modern methods of psoriasis treatment we came to the opinion that an important component in the introduction of new ways of treatment should take into account the effectiveness, availability and safety of the pharmaceutical action of drugs, to improve not only the physical condition of the patient, but also psychological recovery in society.

While applying modern approaches to biologic treatment, it is important to remember that traditional psoriasis treatments remain an important part of the therapeutic arsenal. Traditional topical drugs, phototherapy and systemic drugs, such as methotrexate, acitretin and cyclosporine, have proven their effectiveness and are still widely used. When choosing the optimal treatment, the physician should take into account the individual characteristics of the patient, the extent of the lesion, comorbidities and potential side effects

In Table 2 we have shown examples of traditional treatments.

Table 2

Traditional method of psoriasis treatment.

Therapy	Example
Topical therapy	Corticosteroids, vitamin D analogs (calcipotriene, calcitriol), retinoids
Phototherapy	Broadband UVB, narrowband UVB, PUVA
Systemic therapy	Methotrexate, retinoids, cyclosporine
Alternative methods	Certain antibiotics, azathioprine, sulfasalazine, oral calcitriol, other unorthodox approaches, cryotherapy

It is striking that, despite the fact that topical therapy and phototherapy for psoriasis have been used for more than 40 years, the level of evidence on their efficacy and safety is not high by today's standards. This is mainly due to the fact that most publications on topical therapy and phototherapy date back at least 10-20 years.

Although these drugs have achieved good results in psoriasis therapy for several years, there are some key problems, especially their toxicities and side effects such as upper respiratory tract infection, urinary tract infection or herpes simplex. Therefore, the design and development of a new effective therapeutic strategy with low toxicity may help to improve the therapeutic outcomes of psoriasis patients

Figure 3 shows the chronological changes occurring over the century in the treatment of psoriasis. Scientific information studied in their research scientists [14, 55] have once again proved that progress in treatment has been based on scientific point approaches of studying drug development, applying and taking into account the multifaceted nature of disease development, changes in patient needs over time.

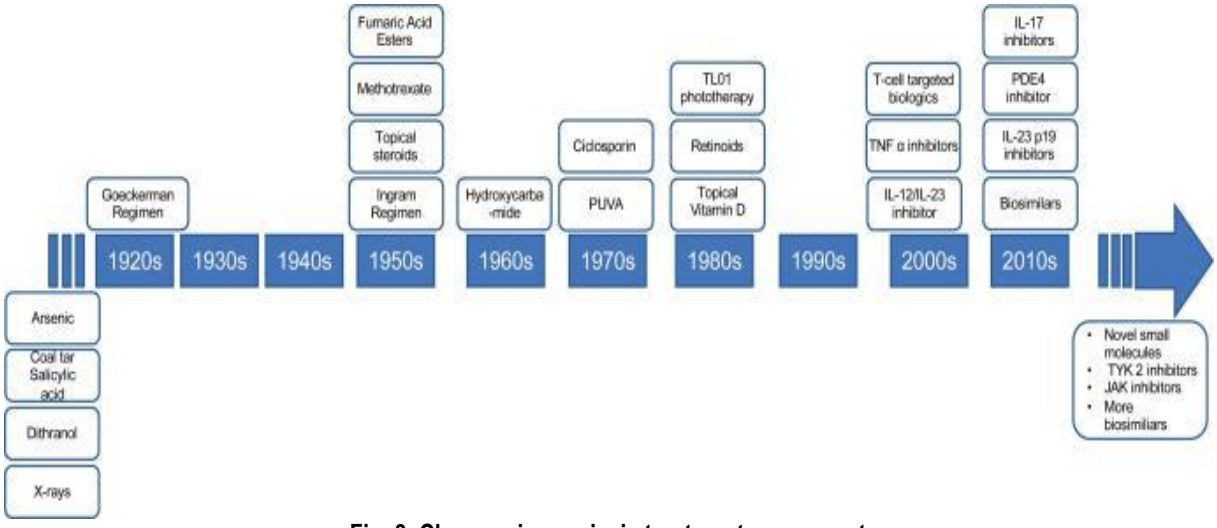

Fig. 3. Changes in psoriasis treatment over a century.

Claire REID and Christopher E. M. GRIFFITHS. Dermatology Centre, Salford Royal Hospital, University of Manchester, NIHR Manchester Biomedical Research Centre, Manchester, UK. Psoriasis and Treatment: Past, Present and Future Aspects- https://www.medicaljournals.se/acta/content/abstract/10.2340/00015555-3386

Psoriasis is a common disease with an estimated prevalence of 2-4% in Western countries. It significantly affects physical and psychological quality of life. Psoriasis is considered an immune-mediated inflammatory disease with both innate and adaptive immune responses involved in its pathogenesis [73,70,63].

However, given the pathophysiology of psoriasis, the disease itself moved into the category of T-cell-mediated diseases, and then was recognized as a systemic inflammatory process with a pronounced role of the immune system, which naturally drew attention to the approaches to therapy, namely the transition from nonspecific agents (corticosteroids, methotrexate) to more selective drugs such as cyclosporine and highly selective biological therapies. Tumor necrosis factor inhibitors (TNF-α) are now recommended for curing more severe forms of psoriasis, which has been a real breakthrough in treatment.

Psoriasis is a chronic inflammatory disease in which approximately one-third of patients develop one of the complications in the form of psoriatic arthritis, on average 7-10 years after disease onset. In addition, psoriasis is associated with an increased risk of obesity, cardiovascular disease, nonalcoholic fatty liver disease, diabetes, and metabolic syndrome. Increased psychiatric conditions such as depression and anxiety are also frequent comorbid conditions [52,40].

In response to these and other challenges, national and international consensus guidelines in treatment are being further revised, and the arsenal of therapeutic options has expanded considerably.

With the precise targeting of immune pathways to treat psoriasis with new biologic drugs and small molecules, the realization has come that the most effective approach to treating patients is a holistic approach that embraces the biopsychosocial nature of the disease [30].

From the variety of consideration of the latest therapeutic approaches, the direction towards psoriasis regression has changed much more positively in recent years, as the effects are based on various extracellular and intracellular immune processes. Some of these drugs show excellent clinical effects including high PASI 90 scores [74,9].

Conclusions

Psoriasis is a multifactorial, immune-inflammatory disease with a chronic and recurrent course. Thus, the treatment of psoriasis is a high-tech, dynamically developing process, which is based on a deep understanding of the pathogenesis of the disease and the desire for individualized, safe and maximally effective therapy. Progress in understanding the pathogenesis of the disease provides opportunities for certain approaches to expand the therapeutic arsenal.

Combination therapies that include biologics with methotrexate may improve treatment response. More accurate diagnostics, biomarker development, and the application of new technologies hold promise for personalized treatment approaches, predicting response to therapy, and informing treatment decisions. By addressing current challenges and exploring promising avenues, psoriasis management can be optimized and the lives of patients with this chronic disease can be improved.

After reviewing and analyzing scientific publications, we concluded that psoriasis treatment is no longer limited to topical or systemic nonspecific therapies. Empirical approaches have been replaced by evidence-based targeting strategies that target specific sites of the pathophysiologic cascade - in particular, the cytokines IL-17, IL-23, and TNF-α. Biologic drugs and small-molecule inhibitors have achieved complete or near-complete remission in a significant number of patients, including those with previously ineffective treatment.

The focus should be on individualizing therapy, taking into account clinical features, comorbidities, wishes, and optimizing patient care.

Study Limitations: *The single-center nature of the study may limit its generalizability, and the absence of long-term follow-up data restricts the assessment of post-discharge outcomes.*

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