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Psoriasis: A Comprehensive Review of Diagnosis and Treatment

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Abstract: Millions of people throughout the world suffer with psoriasis, a chronic inflammatory skin disorder that drastically lowers quality of life. This extensive overview explores the complex world of psoriasis and provides a thorough analysis of its diagnostic and treatment options. The review begins with an investigation of the psoriasis etiological variables, including genetic predisposition and environmental triggers. The clinical appearance of psoriasis is next explored, illuminating the several kinds and their distinctive clinical characteristics, ranging from the prevalent plaque psoriasis to the less common guttate and pustular varieties. The effectiveness of physical examination, medical history, and histological evaluations are discussed together with other closely examined diagnostic techniques. To give a thorough grasp of the signs and symptoms of the disease, a wide range of diagnostic methods are offered. This review's main emphasis is on the various psoriasis management strategies. These cover a broad range of therapeutic alternatives, such as topical medicines, phototherapy, systemic therapies, and new biologics. The study objectively assesses the effectiveness and safety profiles of each strategy, highlighting the necessity of individualized treatment regimens catered to patients' particular needs. This study emphasizes the value of comprehensive disease management measures, such as lifestyle changes, stress reduction, and psychological support, as crucial elements of psoriasis care in addition to therapy. The evaluation comes to a close by emphasizing the importance of patient education in enabling people to properly manage their conditions. Additionally, it addresses about current studies and advancements in the area, providing a view into how psoriasis may be identified and treated in the future. An in-depth analysis of psoriasis is provided in this thorough overview, along with helpful insights on how to diagnose it and the variety of potential treatments. It seeks to enhance clinical care and the general well-being of psoriasis sufferers by illuminating the complexity of this disorder.

Keywords: Phototherapy, Medical history, Histological evaluations, Psoriasis, Investigation, Pustular, Stress reduction, Lifestyle changes

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Introduction

People of all ages can have psoriasis, a persistent, non-infectious condition that has no preference for sex (Yin *et al.*, 2019). It can affect the skin, nails, and joints and is associated with a variety of comorbidities. Psoriasis is a painful, debilitating, and disfiguring condition. The cause is still unknown, and the majority of treatments still focus on treating the acute symptoms. Psoriasis patients are more prone to develop depression, metabolic syndrome, diabetes, and cardiovascular diseases (Augustin *et al.*, 2010). Depending on hereditary and environmental variables, concomitant diseases, drugs, and immune function, psoriasis exhibits a wide range of morphologic manifestations. Approximately 80% of all instances of psoriasis are of the plaque-type, making it the most common kind. Plaque psoriasis is a very noticeable condition marked by clearly defined, thick, red, itchy lesions that are coated in silvery scales. The condition can also manifest itself in less frequent ways, such as pustular, guttate, and erythrodermic psoriasis. About 50% of psoriasis patients report having pitted nails to some extent (Casale *et al.*, 2021). Histologically, lesion psoriatic skin has a considerable epidermal thickness, cutaneous inflammatory cell infiltration, and an increase in the number of dilated blood vessels in the upper dermis. Due to its persistence and need for ongoing treatment, psoriasis is linked to a heavy disease burden and has a negative impact on patients' quality of life (M. G. Lebwohl *et al.* 2014). The wide range of psoriatic diseases, which include many psoriasis subtypes and psoriatic arthritis, have no identified treatments. Psoriasis is associated with high morbidity rates, and current therapies can have substantial negative

side effects. Psoriasis and metabolic syndrome, type 2 diabetes, and atherosclerosis are strongly correlated, and these three conditions together account for the bulk of mortality in the Western world. Long-term therapy's financial burdens and the disease's social effects have a big impact on the health care system and society as a whole. The overall yearly direct and indirect expenses of psoriasis are over US \$11 billion, with lost workdays accounting for 40% of the financial burden, according to the National Psoriasis Foundation, USA. Topical corticosteroids, vitamin D analogues, calcineurin inhibitors, Keratolytics, and coal tar are some of the topical treatments for mild psoriasis. Biologics (such as Etanercept, Adalimumab, Certolizumab, Infliximab, Ustekinumab, Secukinumab, and Ixekizumab) and small molecules (like apremilast) can be used to treat patients with moderate-to-severe illness. Several common systemic drugs, including as methotrexate (MTX), cyclosporine A, and retinoid, can be used to treat psoriasis (Armstrong and Read, 2020).

Psoriasis Pathogenesis:

This section will provide a quick overview of the immunopathogenesis and histological features of psoriasis (Fig. 1). Both psoriasis and psoriatic arthritis (PsA) are complicated hereditary inherited diseases. Research on families, twins, linkage, and population-based relationships supports the genetic basis of psoriasis. These studies demonstrate the significance of the immune system and keratinocytes in the aetiology of psoriasis. It has been found that psoriasis and psoriatic arthritis share a group of unique CARD14 polymorphisms, and that

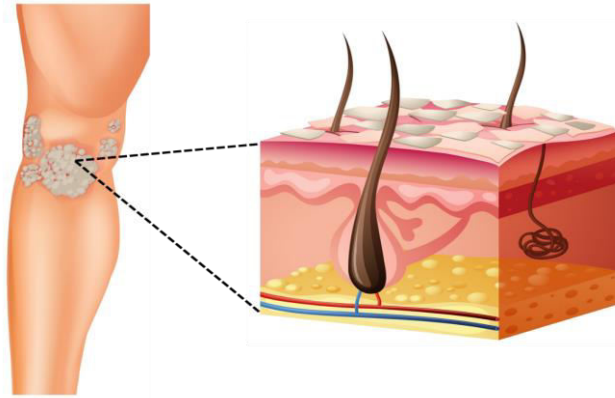


Fig. 1: Psoriasis.

CARD14 modulates NF- κ B-mediated responses in the skin. In order to gather data on a connection between psoriasis and various immune system loci, Elder and his colleagues assessed the SNP analyses of multiple significant studies in this field.

These loci included the TH17 pathway (IL12B, IL23A, IL23R, TRAF3IP2, TYK2), the innate immunity (NFB and IFN) signalling pathways (TNFAIP3, TNIP1, NFKBIA, REL, TYK2, IFIH), and the TH2 route (Fig. 2). The two main effects of the underlying patho-physiologic dysregulation in psoriasis are excessive keratinocyte proliferation and aberrant differentiation. The epidermal rete peg clearly lengthens and the epidermis thickens considerably histologically as a result of an increase in keratinocyte proliferation in the intermolecular epidermis. The following observations strongly support the idea that T lymphocytes have a role in pathogenesis: (i) immunotherapy that targets T cells or T cell cytokines like IL-17 clears psoriasis active plaques and (ii) Following intradermal infusion of antigen-activated T cells, transplanted nonlesional psoriatic skin in SCID mice develops into a psoriatic plaque.

Studies in the SCID mouse model have shown that lymphocytes triggered by substance P (SP) and nerve growth factor (NGF) may also produce psoriasis in nonlesional psoriatic skin grafts, in addition to the typical inflammatory mediators

(Fig. 3). Accordingly, certain T cell subpopulations, in conjunction with their receptors, chemokines (Th1, Th17, and Th22), adhesion molecules, growth factors like NGF, and neuropeptides all collaborate to evolve into the distinct inflammatory and proliferative processes that are specific to psoriasis. Numerous studies have been conducted on the inflammatory infiltrates that affect the skin and joints. Both tissues exhibit detectable lymphocytic infiltrates in the sub lining layer stroma of the joint and the dermal papillae of the skin, respectively. This ratio is inverted in regions of the body where CD8+ T cells are more prevalent, including the epidermis, synovial fluid compartment, and the enthesis. T cells, which predominately consist of CD4+ lymphocytes, are the most prominent lymphocytes in tissues. The potential that CD8+ T cells are in charge of the immune response in the skin and joints is increased by this differentiating CD8+ T cell tropism.

Human Leucocyte Antigen (HLA) Class Association in Psoriasis is true. Histological markers of plaque psoriasis include elongated epidermal rete pegs, parakeratosis, loss of the granular layer, suprapapillary thinning, spongiform Kojog pustules, dermal/epidermal CD3+ T cell infiltrates, and epidermotropism of CD8+ T cells. The typical dermal and epidermal features of a plaque psoriasis may not match the histological characteristics of psoriatic subtypes.

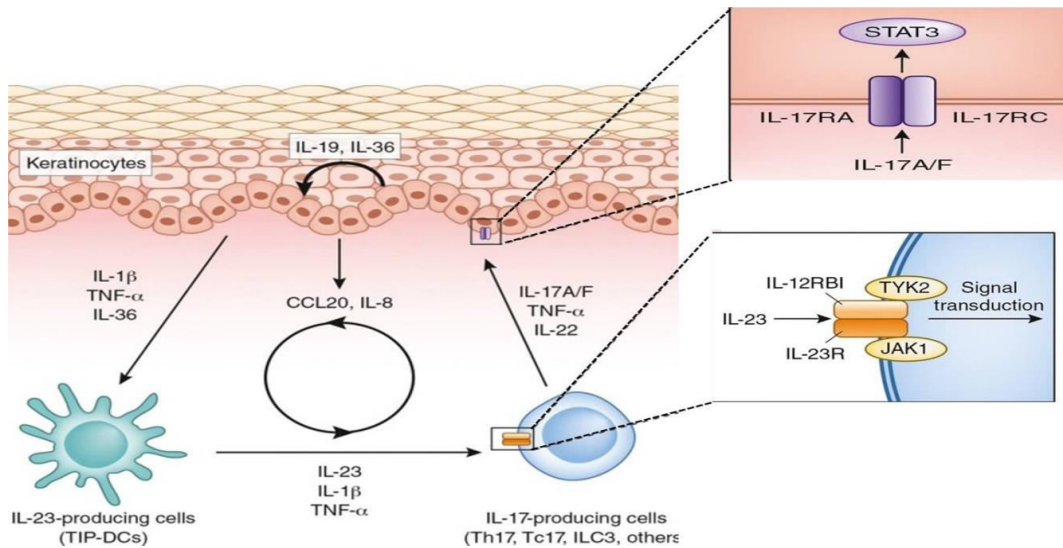


Fig. 2: Pathophysiology of psoriasis.

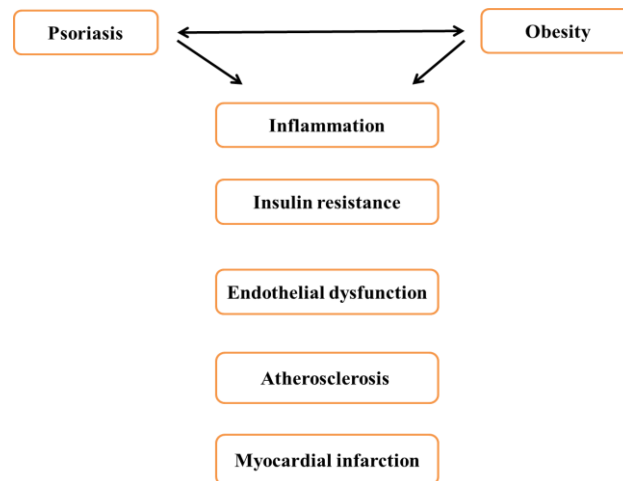


Fig. 3: Cardiovascular Comorbidities in Psoriasis.

Diagnosis of Psoriasis:

Psoriasis is diagnosed clinically by pattern recognition because there are no established diagnostic criteria for the condition. This calls for a comprehensive morphologic investigation of a skin lesion. Psoriasis has been divided into a variety of clinical phenotypes based on the characteristics of the cutaneous lesions and anatomical sites.

Psoriasis clinical phenotypes:

Psoriasis with plaques:

Nearly 90% of people with psoriasis have this

kind, making it the most prevalent is sometimes referred to as psoriasis vulgaris. The lesion typically starts off as erythematous papules or macules that spread outside of the body before hardening into plaques. The lesions are distinguished by dry, rounded or oval plaques with distinct borders that are covered in loosely adhering silvery white scales. Despite the fact that psoriasis plaques can appear anywhere on the body, they often appear symmetrically dispersed over the elbows and knees, with the scalp possibly being the most commonly afflicted location (Madabhavi et al. 2020). The Koebner phenomenon is when new lesions develop in a

psoriasis patient after acute cutaneous trauma. Another prominent characteristic of plaque psoriasis is the Auspitz phenomenon, in which a little breach of the lesion's outermost layer causes pinpoint bleeding.

Intestinal psoriasis:

Spherical, erythematous exanthems that are generally less than 1 cm in size and spread centripetally throughout the trunk and extremities are the hallmark of intestinal psoriasis. The lesions are monomorphic, have droplet-like morphology (referred to as "gutta"), and are at the same evolutionary stage. After getting a streptococcal infection or an upper respiratory tract infection, children and teens frequently develop guttate psoriasis. The condition is often self-limiting, although a small number of people may develop persistent plaque psoriasis. It follows that the genetic similarity of chronic plaque psoriasis and guttate psoriasis, which have a high connection with the PSORS1 genetic locus, is not a surprise (Asumalahti *et al.*, 2003).

Psoriasis with pustules:

Clusters of painful, sterile pustules with an underlying, blotchy, erythematous substrate are the hallmark of pustular psoriasis. Histologically, the lesions show intraepidermal micropustules and extensive dermal neutrophil infiltration. There are several ways to characterise pustular psoriasis. The two most well-known kinds are localised pustular psoriasis and generalised pustular psoriasis (Baker *et al.*, 1968). Acrodermatitis continua of Hallopeau and palmar pustulosis are two different types of localized pustular psoriasis. The pustular eruption of the fingers and toes distinguishes Acrodermatitis continua from other skin conditions. The pustules and scaling that define palmoplantar pustular psoriasis are erythematous at the base. It often impacts the nails and is related to psoriasis. Plaque development is uncommon in palmoplantar pustulosis, but it is possible if psoriasis vulgaris is

present as well. Generalized pustular psoriasis is a rare, aggressive, and unstable illness. According to study, 20% of people with persistent plaque psoriasis may eventually develop pustular lesions. Generalized pustular psoriasis patients frequently have severe illnesses, need hospitalization, and have to have their liver function, hypocalcaemia, and hydration well monitored. Pustular psoriasis may be cured with vigorous therapy and supportive care. Rarely, the first six months of pregnancy might see the development of impetigo herpetiformis, a form of pustular psoriasis (Wamalwa, 2017).

Dermatologic psoriasis:

Clinically, the majority of the body's surface is covered in generalised erythema. Erythrodermic psoriasis commonly occurs from inadequate management of pre-existing psoriasis, abrupt discontinuation of systemic therapy, such as corticosteroids, an unfavourable drug reaction, such as a lithium reaction, or an underlying systemic infection. Erythrodermic psoriasis may be easy to identify in patients who have previously experienced psoriasis. Airborne contact dermatitis, drug rash, Sezary syndrome, and pityriasis rubra pilaris should all be taken into consideration in the differential diagnosis of erythroderma since they can all be lethal. The presence of erythrodermic psoriasis in a patient with undiagnosed erythroderma may be indicated by nail changes. Additionally, a skin biopsy may help with both the diagnosis of psoriasis and the exclusion of the aforementioned conditions.

Psoriasis phenotypes according to anatomical site involvement:

Psoriasis of the scalp:

Psoriasis is known to often affect the scalp. Due of its appearance, scalp psoriasis at the hairline can significantly reduce quality of life. Choosing the best course of therapy, having trouble applying topical medications, and figuring out how to handle a severe case of the illness are all significant hurdles in controlling scalp psoriasis.

Inverse and flexural psoriasis:

Contrary to its preferred outer locations, such as the knees and elbows, psoriasis can appear on flexor surfaces and in skin folds, including the perineal, inframammary, axillary, inguinal, and intergluteal areas. Because they are wet, the psoriasis in these areas is less scaly than the plaque form.

Platylantar psoriasis:

Nonpustular palmoplantar psoriasis is a potentially crippling condition marked by painful fissures and thick scales (Janagond *et al.*, 2013). Systemic methotrexate and acitretin were assessed for their effectiveness and safety in treating psoriasis patients with substantial palmoplantar involvement.

Psoriasis of the genitalia:

Genital psoriasis can afflict people of any age, including infants and the elderly. Over one-third of psoriasis patients also have genital psoriasis. This particular kind of psoriasis requires special attention since it significantly affects both men and women's quality of life.

Toenail psoriasis:

Nails are frequently affected by psoriasis, and occasionally, the condition's distinctive alterations can be identified. There are currently limited and usually unsuccessful treatment options for nail psoriasis. Onycholysis, or the detachment of the nail's proximal portion from the nail bed, is the most common nail abnormality, while pitting is the most blatant sign of psoriasis in the nails. To describe nail bed involvement, the terms "oil spots" or "orange-yellow patches" are frequently employed. Additionally, the nail plate may thicken, dystrophize, change color, or become yellow. Subungual hyperkeratosis is the accumulation of keratinous material beneath the nail plate.

Treatment of Psoriasis:

Decisions about the treatment of psoriasis should be based on an evaluation of the condition's

severity, the existence of concomitant conditions, the requirement for referral to a specialist, and, if feasible, the identification of psoriasis trigger factors (Beyaert *et al.*, 2013). IL-12/IL-23 (Ustekinumab), IL-17 (Secukinumab and Ixekizumab), and monoclonal antibodies that target tumour necrosis factor (infliximab, adalimumab, and Etanercept) are among the most recent biologic therapies for psoriasis (Nast *et al.*, 2015; Gómez-García *et al.*, 2017).

Glucocorticoids, vitamin D analogues, and phototherapy can all be used topically to treat mild to severe psoriasis. Treatment options for systemic psoriasis are frequently needed. Comorbid conditions like psoriasis arthritis are also very important when choosing a course of therapy. Advanced targeted biological medications have been developed in recent years as a result of a rapid development in psoriasis therapy. There are several conventional systemic treatments for psoriasis (Table 1), including methotrexate (MTX), cyclosporine A, and retinoid (Thorleifsdottir *et al.*, 2017).

Psoriasis therapies for mild cases:

Although mild psoriasis has several different definitions, it typically affects less than 3% to 5% of the body's surface. Evaluation for psoriatic arthritis is the first step in the overall treatment strategy for psoriasis regardless of the severity of the condition.

Corticosteroids Topical:

Most people with mild or localised psoriasis receive their treatment mostly from topical corticosteroids. The anti-inflammatory, anti-proliferative, and locally vasoconstrictive actions of topical corticosteroids are caused by their suppression of the genes that produce pro-inflammatory cytokines. Given the proper dosage and patient compliance, topical corticosteroids are frequently effective in treating mild or localised psoriasis. The efficiency of topical corticosteroids varies depending on the class.

Table 1: Drugs that can be used to treat psoriasis

S. No.	Drug	Mechanism	Route of Administration	References
1.	Methotrexate	Inhibition of dihydrofolate reductase prevents the production of purines and causes lymphocyte death.	S.C./Oral	Revicki <i>et al.</i> (2008)
2.	Cyclosporine	Inhibition of calcineurin results in a decrease in IL-2	Oral	Saurat <i>et al.</i> (2008), Maza <i>et al.</i> (2011)
3.	Acitretin	Retinoid receptor binding normalizes keratinocyte differentiation and proliferation	Oral	Lindqvist <i>et al.</i> (2018), Dogra and Yadav (2014)
4.	Fumarate	The pro-inflammatory Th1/Th17 response is switched to an anti-inflammatory/regulatory Th2 response with the aid of intracellular glutathione, Nrf2, NF-B, and HIF-1 regulation.	Oral	Coates and Helliwell (2016)
5.	Etanercept	TNF-R-mimicking dimeric human fusion protein	S.C.	West <i>et al.</i> (2017)
6.	Infliximab	soluble and trans membrane forms of TNF are both recognized by the monoclonal antibody chimeric IgG1.	I.V.	Zhang <i>et al.</i> (2018)
7.	Certolizumab	TNF-specific humanized monoclonal antibody with a polyethylene glycol-conjugated Fc part	S.C.	Turkmen and Dogan (2021)
8.	Ustekinumab	The p40 protein component, which is used by both IL-12 and IL-23 cytokines, is specifically bound by a human IgG1k monoclonal antibody known as IL-12/IL-23 p40.	S.C.	Savage <i>et al.</i> (2015)
9.	Tildrakizumab	Humanized IgG1 binds to the p19 component of IL-23 to specifically inhibit it.	S.C.	Banaszczyk (2019)
10.	Guselkumab	IL-23's p19 component is particularly inhibited by the human immunoglobulin G1 lambda (IgG1) monoclonal antibody.	S.C.	Nogueira and Torres (2019)
11.	Risankizumab	Monoclonal humanized IgG1 antibody that targets the p19 subunit to inhibit interleukin-23	S.C.	Huang and Tsai (2020)
12.	Secukinumab	Monoclonal human IgG1 antibody against IL-17A	S.C.	Berg <i>et al.</i> (2021)
13.	Ixekizumab	Monoclonal humanized immunoglobulin G4 antibodies bind and neutralize IL-17A very specifically.	S.C.	Ruggiero <i>et al.</i> (2022)
14.	Brodalumab	IgG2 monoclonal antibody against IL-17RA that is human	S.C.	Kim Papp <i>et al.</i> (2014)

Skin-Applied Vitamin D Analogues:

Topical vitamin D analogues work by attaching to the vitamin D receptors on T cells and keratinocytes. As a result, keratinocyte differentiation is promoted and keratinocyte proliferation is suppressed. The three types of topical vitamin D analogues used in the USA are calcitriol alone, calcitriol coupled with another calcitriol, or calcipotriene. As long as the patient has healthy renal function, a variety of topical vitamin D analogues can be employed.

Inhibitors of Calcineurin Topical:

Topical calcineurin inhibitors stop the generation of IL-2 and IFN- γ , which prevents T cell activation. Tacrolimus and pimecrolimus are two examples of topical calcineurin inhibitors that are regularly used to treat psoriasis in intertriginous and face regions without the unfavourable side effect of skin shrinkage associated with extended therapy. Skin irritation is a common side effect, especially in severely inflamed lesions.

Therapeutic Keratolytics:

Topical tazarotene and salicylic acid are examples of Keratolytics agents. A topical retinoid called tazarotene slows keratinocyte growth and aids in removing the plaque's thick scales. After 12 weeks, at least 63% of individuals may have a 50% improvement in their psoriasis. Burning and irritation are two common side effects that can be decreased by using a lower dose, a cream formulation, an alternate day of treatment, or using it in conjunction with topical corticosteroids (Lebwohl *et al.*, 2019).

Specific Phototherapy;

Exposure to particular light wavelengths constitutes phototherapy, often known as light therapy. Plaque psoriasis sufferers have long been treated with phototherapy. Phototherapy, unlike sunshine, offers certain wavelengths that are beneficial for treating psoriasis while reducing emission of wavelengths linked to cancer (Wong *et al.*, 2020).

Treatments for Moderate to Severe Psoriasis:

There is substantial disagreement over what constitutes moderate to severe psoriasis. Others estimate that 5% to 10% of the body's surface area is affected by mild psoriasis. When psoriasis affects 3% to 10% of the body's surface, some doctors describe the condition as moderate. 10% or more of the body's surface area being affected is often considered to be severe psoriasis. Systemic treatments are often used to treat patients with moderate to severe psoriasis (Armstrong *et al.*, 2020).

Phototherapy:

With the development of biologics, phototherapy for moderate to severe psoriasis has become less common. The three primary forms of phototherapy used to treat psoriasis are broadband UV-B, narrowband UV-B, and psoralen with UV-A (PUVA). Narrowband UV-B therapy is typically chosen over broadband therapy because it is more effective. It is also preferred for application because narrowband UV-B has a superior safety profile than PUVA (Wong *et al.*, 2013; Zhang *et al.*, 2018).

UV-B:

UV-B exposure reduces DNA synthesis, which causes keratinocyte death and lower T cell production of proinflammatory cytokines. Both the narrowband (311 nm) and the broadband (290-320 nm) wavelengths of UV-B phototherapy can be utilized to treat plaque psoriasis. Initial therapy is often given three times per week in an office setting or at home. To maintain efficacy, treatment frequency can be lowered to twice weekly; eventually, depending on the patient's reaction, it may be further reduced (Armstrong *et al.*, 2020).

PUVA:

A psoralen, such as methoxalen, is used in PUVA therapy and is used topically or orally before UV-A (320-400 nm) radiation. Psoralen is intercalated into DNA in order to inhibit DNA synthesis. Patients normally get oral PUVA two to three times a week during the initial phase of treatment, until the psoriasis is completely or

Table 2: List of non-drug therapies for various illness

S. No.	Kind of treatment	Explanation	References
1.	Dietary	Components include milk, butter, mung beans, spinach, pumpkin, Prunus dulcis, grape (Vitis vinifera), pomegranate juice, plum juice, tamarind, and fig (Ficus carica). Other components include non-alcoholic beer, oxymel, and Vitis vinifera.	Ghaffari <i>et al.</i> (2022), Mashhadi <i>et al.</i> (2022)
2.	Avoiding	Spicy, really salty and sour meal lentils, eggplant, horse, duck, goat, and rabbit Garlic and onion, dried and salted pork, mushrooms, cabbage Game meat, dried fish, old cheese, hard-boiled eggs, Sugar, aged wine	Tsapenko (2021)
3.	Sleep and awareness	Since sleeplessness can exacerbate a condition, treatment is essential. Consuming Ma'aljobon, sweet almonds, and dishes that are humidifying—Cooking poultry, fish, or yeanning with squash, spinach, lettuce, and Viola odorata oil is a healthful option.	Van Renterghem (2022)
4.	Air and climate	The symptoms of the illness are made worse by extremely hot, cold, and dry environments. When the humidity increases, the symptoms get better.	Hashemi and Raza (2009)
5.	Exercise and activity	The symptoms of the condition are made worse by exercise and vigorous physical and sexual activity. Therefore, it's important to balance these activities,	Maza <i>et al.</i> (2011)

nearly completely gone; thereafter, the frequency of treatment gradually reduces.

Non-pharmacological treatments:

A list of non-drug therapies for various illnesses was provided (Table 2), including food and lifestyle modifications, leech therapy, venesection, and phlebotomy.

Conclusion

Psoriasis is a complicated disease with a range of clinical manifestations. Individualized treatment program that are catered to the patient's particular needs and include topical medicines, phototherapy, systemic drugs, and biologics are necessary for effective care. The degree of psoriasis, co-morbidities, and patient preferences should all be taken into account when selecting a course of treatment. Holistic treatment is essential in addition to medical measures. Integral parts of psoriasis therapy include dietary changes, stress reduction, and psychological support. A nutritious diet and stress management practices should be discussed with patients as an adjunct to medical care. Psoriatic arthritis is a major issue since it is one of much comorbidity linked to psoriasis. In order to stop future joint

deterioration and enhance the patient's overall quality of life, early detection and treatment are crucial. Regular monitoring and cooperation between dermatologists and rheumatologists are crucial in this context. This in-depth analysis emphasizes the complexity of psoriasis and the value of a multifaceted strategy for both diagnosis and therapy. It focuses on the importance of individualized care, comprehensive treatment, and early intervention for problems, patient education, and a persistent goal of raising the patient's quality of life. These guidelines can help medical practitioners better handle the problems caused by psoriasis and improve the well-being of persons who suffer from this chronic skin condition.

References

- Armstrong AW, Puig L, Joshi A, Skup M, Williams D, Li J, Betts KA and Augustin M. (2020) Comparison of biologics and oral treatments for plaque psoriasis: A meta-analysis. *JAMA Dermatol.* 156(3): 258-269.
- Armstrong AW and Read C. (2020) Pathophysiology, clinical presentation, and treatment of psoriasis: A review. *JAMA* 323(19): 1945-1960.
- Asumalahti K, Ameen M, Suomela S, Hagforsen E, Michaëlsson G, Evans J, Munro M, Veal C, Allen M, Leman J, David Burden A, Kirby B, Connolly M, Griffiths CE, Trembath RC, Kere J, Saarialho-Kere U

- and Barker JN. (2003) Genetic analysis of PSORS1 distinguishes guttate psoriasis and palmoplantar pustulosis. *J Invest Dermatol.* 120(4): 627-632.
- Augustin M, Glaeske G, Radtke MA, Christophers E, Reich K and Schäfer I. (2009) Epidemiology and comorbidity of psoriasis in children. *Br J Dermatol.* 162(3): 633-636.
- Baker H and Ryan TJ. (1968) Generalized pustular psoriasis. A clinical and epidemiological study of 104 cases. *Br J Dermatol.* 80(12):771-793.
- Banaszczyk K. (2019) Tildrakizumab in the treatment of psoriasis - literature review. *Reumatologia* 57(4):234-238.
- Berg SH, Balogh EA, Ghamrawi RI and Feldman SR. (2021) A review of secukinumab in psoriasis treatment. *Immunotherapy* 13(3):201-216.
- Beyaert R, Beaugerie L, Van Assche G, Brochez L, Renauld JC, Viguier M, Cocquyt V, Jerusalem G, Machiels JP, Prenen H, Masson P, Louis E and De Keyser F. (2013) Cancer risk in immune-mediated inflammatory diseases (IMID). *Mol Cancer* 12(1): 98.
- Casale F, Suh S, Yale K and Atanaskova Mesinkovska N. (2021) Clinical role of oral vitamin C and E therapy in skin and hair disorders. *Intern J Cosm Derm.* 1(1):12-20.
- Coates LC and Helliwell PS. (2016) Methotrexate efficacy in the tight control in psoriatic arthritis study. *J Rheumatol.* 43(2): 356-361.
- Dogra S and Yadav S. (2014) Acitretin in psoriasis: an evolving scenario. *Int J Dermatol.* 53(5): 525-538.
- Ghaffari F, Taheri M, Meyari A, Karimi Y and Naseri M. (2022) Avicenna and clinical experiences in Canon of Medicine. *J Med Life.* 15(2):168-173.
- Gómez-García F, Epstein D, Isla-Tejera B, Lorente A, Vélez García-Nieto A and Ruano J. (2017) Short-term efficacy and safety of new biological agents targeting the interleukin-23-T helper 17 pathway for moderate-to-severe plaque psoriasis: a systematic review and network meta-analysis. *Br J Dermatol.* 176(3): 594-603.
- Hashemi SM and Raza M. (2009) The traditional diagnosis and treatment of respiratory diseases: a description from Avicenna's Canon of Medicine. *Ther Adv Respir Dis.* 3(6): 319-328.
- Huang YW and Tsai TF. (2020) A drug safety evaluation of risankizumab for psoriasis. *Expert Opin Drug Saf.* 19(4): 395-402.
- Janagond AB, Kanwar AJ and Handa S. (2013) Efficacy and safety of systemic methotrexate vs. acitretin in psoriasis patients with significant palmoplantar involvement: a prospective, randomized study. *J Eur Acad Dermatol Venereol.* 27(3): 384-389.
- Lebwohl MG, Bachelez H, Barker J, Girolomoni G, Kavanaugh A, Langley RG, Paul CF, Puig L, Reich K and van de Kerkhof PC. (2014) Patient perspectives in the management of psoriasis: results from the population-based multinational assessment of psoriasis and psoriatic arthritis survey. *J Am Acad Dermatol.* 70(5): 871-881.
- Lindqvist T, Salah LA, Gillstedt M, Wennberg AM and Osmanovic A. (2018) Methotrexate management in psoriasis: Are we following the guidelines? *Acta Derm Venereol.* 98(4): 449-451.
- Madabhavi I, Ks S, Dharmarajan Lethika R, Tumbal S, Miskin AT, Sarkar M and Modi M. (2020) Intraconal metastasis leading to diagnosis of hepatocellular carcinoma. *Middle East J Dig Dis.* 12(1): 48-51.
- Maza A, Montaudie H, Sbidian E, Gallini A, Aractingi S, Aubin F, Bachelez H, Cribier B, Joly P, Jullien D, Le Maître M, Misery L, Richard MA, Ortonne JP and Paul C. (2011) Oral cyclosporin in psoriasis: a systematic review on treatment modalities, risk of kidney toxicity and evidence for use in non-plaque psoriasis. *J Eur Acad Dermatol Venereol.* 2:19-27.
- Nast A, Jacobs A, Rossumeck S and Werner RN. (2015) Efficacy and safety of systemic long-term treatments for moderate-to-severe psoriasis: A systematic review and meta-analysis. *J Invest Dermatol.* 135(11): 2641-2648.
- Nogueira M and Torres T. (2019) Guselkumab for the treatment of psoriasis - evidence to date. *Drugs Context* 8: 212594.
- Papp K, Leonardi C, Menter A, Thompson EH, Milmont CE, Kricorian G, Nirula A and Klekotka P. (2014) Safety and efficacy of brodalumab for psoriasis after 120 weeks of treatment. *J Am Acad Dermatol.* 71(6): 1183-1190.
- Revicki DA, Willian MK, Menter A, Gordon KB, Kimball AB, Leonardi CL, Langley RG, Kimel M and Okun M. (2007) Impact of adalimumab treatment on patient-reported outcomes: results from a Phase III clinical trial in patients with moderate to severe plaque psoriasis. *J Dermatolog Treat.* 18(6): 341-350.
- Ruggiero A, Megna M, Fabbrocini G, Fornaro L and Villani A. (2022) Drug safety evaluation of ixekizumab for psoriasis: a review of the current knowledge. *Expert Opin Drug Saf.* 21(10): 1249-1257.
- Saurat JH, Stingl G, Dubertret L, Papp K, Langley RG, Ortonne JP, Unnebrink K, Kaul M and Camez A. (2008) Efficacy and safety results from the randomized controlled comparative study of adalimumab vs. methotrexate vs. placebo in patients

- with psoriasis (CHAMPION). *Br J Dermatol.* 158(3): 558-566.
- Savage LJ, Wittmann M, McGonagle D and Helliwell PS. (2015) Ustekinumab in the treatment of psoriasis and psoriatic arthritis. *Rheumatol Ther.* 2(1):1-16.
- Tansaz M, Sohrabvand F, Adhami S, Keshavarz M, Bioos S, Mokaberinejad R and Yavari M. (2020) Evaluation of uterine temperament in Iranian infertile women using a quantitative instrument for uterine temperament detection. *Int J Prev Med.* 11: 39.
- Tsapenko IP. (2021) US Migration policy towards the states of the North American continent. *MGIMO Rev Int Relations* 14(5): 101-129.
- Turkmen M and Dogan S. (2021) Certolizumab pegol in the treatment of psoriasis: Real-life data. *Dermatol Ther.* 34(3): e14929.
- Van Renterghem AMS. (2022) The Alphabet of nemnivirus and its place within the study of runica manuscripta. *Nottingham Medieval Studies* 66: 9-31.
- Wamalwa EW. (2017) Recurrent impetigo herpetiformis: case report. *Pan Afr Med J.* 27: 219.
- West J, Ogston S, Berg J, Palmer C, Fleming C, Kumar V and Foerster J. (2017) HLA-Cw6-positive patients with psoriasis show improved response to methotrexate treatment. *Clin Exp Dermatol.* 42(6): 651-655.
- Wong T, Hsu L and Liao W. (2013) Phototherapy in psoriasis: a review of mechanisms of action. *J Cutan Med Surg.* 17(1): 6-12.
- Yin J, Bai Z, Zhang J, Zheng Z, Yao H, Ye P, Li J, Gao X and Zhang Z. (2019) Burden of colorectal cancer in China, 1990-2017: Findings from the Global Burden of Disease Study 2017. *Chin J Cancer Res.* 31(3): 489-498.
- Zhang P and Wu MX. (2018) A clinical review of phototherapy for psoriasis. *Lasers Med Sci.* 33(1): 173-180.