

# Concept of *Bars-e-Aswad* (Plaque Psoriasis) and Its Management in Unani System of Medicine

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## ABSTRACT

Plaque Psoriasis is a natural, genetically determined inflammatory skin disorder that affects 1-3% of the world's population, the prevalence of psoriasis in adults varies from 0.44 to 2.8%, in India. People of any age may be affected, and men and women are equally affected. The word psoriasis is derived from Greek word 'psora' meaning 'itch' 'iasis' meaning 'action, condition'. Conventional medical practices have been under use for the past half-century for treating psoriasis, but the incessant nature, reoccurrence of the disease, and lack of safe and effective drugs are on the quest. In Unani medicine, plaque psoriasis is known as *Bars-e-Aswad* and treated according to its established etiology. Unani scholars has emphasized the *Usool-e-Ilaj* (principle of treatment) such as evacuations of black bile (*Istifragh or Tanqiyah Sauda*), use of blood purifier (*Tasfeeh-e-Dam*), *Munzijate Sauda* (Melancholic concoctives), *Mushilate Sauda* (Melancholic purgatives), *Tabreed Badan* (genesis of ratoobat or fluids in the body), try to restore normal temperament (*Tadeele Mizaj*), topical application of *jali* (detergent), *murakhi* (emollient), *murattib* and *mohallil* (anti-inflammatory) *advia*.

**Methodology:** Through ancient Unani literature and modern journals related to the concept and management of *Bars-e-Aswad* (plaque psoriasis).

**Conclusion:** Present review has been studied about concept of *Bars-e-Aswad* (Plaque psoriasis) and its management in Unani system of medicine

**Keywords:** *Bars-e-Aswad*, Plaque psoriasis, Unani medicine

## INTRODUCTION

Psoriasis is a common, chronic, disfiguring, inflammatory and proliferative condition of the skin, in which genetic and environmental influences have a major role.<sup>1</sup>The characteristic lesion is a sharply demarcated erythematous plaque with micaceous scales, and the plaques may be localised or wide spread in distribution.<sup>2</sup> Psoriasis is a chronic, non-communicable, debilitating, disfiguring, and crippling disorder that has no cure, according to the WHO.<sup>3</sup> It comes in various types and can occur anywhere on the body, including the scalp, nails, and flexural skin folds. It can range in severity from mild disease with light desquamation to extreme and recalcitrant types with thickened crusted plaques that can affect the entire body.<sup>4</sup> Unani physicians defined *Baras-e-Aswad* (plaque psoriasis) as a skin disorder characterized by dryness, roughness, the thickness of skin, and formation of irregular plaques that are associated with intense itching and round scales over the affected area of Skin. Psoriasis is widely distributed with a prevalence of 2-3% and 25% of those affected are estimated to have a mild to serious disease. It is a major global epidemic, with prevalence rates ranging from 0.09% to 11.4% in different countries.<sup>5</sup> Psoriasis incidence among total skin patients in India ranges from 0.44 to 2.8% with an overall incidence of 1.02%.<sup>6</sup>It affects people of all ages, from infants to the elderly and involves both men

and women equally.<sup>4,7</sup> It is characterized by persistent inflammation, which results in uncontrolled keratinocyte proliferation and uncontrolled differentiation. The inflammatory infiltrates of dermal dendritic cells, macrophages, T cells, and neutrophils are major consequences of acanthosis (epidermal hyperplasia) in the histology of the psoriatic plaque.<sup>8</sup> Despite evidence of genetic predisposition, the patient's genetic history affects approximately 35% to 50% of psoriasis heritability. Triggering factors like seasonal variations, sunlight, smoking, alcohol intake, overweight and physical inactivity, infection, drugs, and stressful life events can all provoke psoriasis in genetically predisposed individuals. According to Unani medicine, the basic etiology of *Bars-e-Aswad* described by Unani physicians is derangement of body fluids, mainly *Khilt Sawdā* (black bile) associated with weakness of skin. When blood combines with *Balgham-i-Shor Mirārī* or *Ghayr Tabī'ī Sawdā* (abnormal melancholic humour), the *Tabī'at* (physic) expels this *Māddah* (abnormal humour) towards the skin from internal organs in order to extract it from the body, but it retains under the skin. Moreover, its accumulation impedes nutrition and induces skin malfunction; as a consequence, skin tissues drop dead and fall out in the form of scales, causing itching and roughness.<sup>9-19</sup>

*Bar-e-Aswad* (Plaque Psoriasis) according to Unani medicine, has clinical features like scaling, roughness, thickness of skin and formation of irregular plaques that are associated with intensive itching. It has fish like scales which are shed off from the body.<sup>7-10,18</sup>

The physical and psychological well-being of an individual is greatly influenced by the appearance of their skin. The catastrophic effects of skin disease cause emotional and psychological issues (desperation, anger, anxiety, and solitude in many cases), as well as social rejection, stigmatization, and turbulence in daily activities.<sup>20</sup> Sexual dysfunction, anxiety, depression, and suicidal ideation were all

documented by these patients. Newer treatment regimens for psoriasis have been developed as a result of medical advancements. At present topical, systemic therapies and phototherapy either alone or a combination are in use as treatment. Unani physicians use three treatment modalities to address these bodily changes/derangements viz *Ilāj bi'l-Ghiza wa Ilāj bi'l-Tadbīr* (dietotherapy & regimenal therapy), *Ilāj bi'l-Dawā* (pharmacotherapy), and *Ilāj bi'l-Yad* (surgery)<sup>21,22</sup> and recommended many drugs for *Bars-e-Aswad* in their treatises like *munzij-e-Sawdā wa mushil-e-Sawdā* (evacuation of black bile), *Ta'dīl - i Mizāj* (restoration of normal temperament) in order to remove the disease causing substance and restore the normal *Mizaj*. They also asserted that diseases can be effectively managed with those drugs having the properties of *Tahlīl-e-Awrām* (resolution) *wa Tasfiya -e- Dam* (blood purification) and are recommended for systemic administration along with the topical application of *Jālī* (detergent), *Murkhī* (emollient), *Murattib* and *Muḥallil* (anti-inflammatory) *advia* in the form of *Ṭilā*, *Zimad*, and *Roghan* (jelly, ointment, or oil)<sup>12-18</sup>

**Pathogenesis:** - The mechanisms of pathogenesis of psoriasis are believed to be a multifactorial disease where immunological, genetic, and environmental factors act together.

When immunological activity is present, various cell types (dendritic cells, keratinocytes, macrophages, natural killer cells, and T cells) interact dynamically with a variety of cytokines (IL-6, IL-8, TNF- $\alpha$ , TGF- $\beta$ ) and growth factors (Vascular Endothelial Growth Factor (VEGF) and Keratinocyte Growth Factor (KGF) to disrupt skin immune homeostasis.<sup>1</sup> Environmental factors tend to be the cause of inflammatory diseases in people who have a latent genetic vulnerability. Diet, microbial infections (from bacteria, fungi, and viruses), chemical irritants, UV radiation exposure,

and bad habits can all contribute to changes in the atmosphere (such as smoking and drinking). The role of genetic factors in psoriasis is well recognized and it is widely regarded as a complex trait. A child with one infected parent has a 14% risk of contracting the disease, while a child with both parents has a 41% chance. The pathogenesis of psoriasis has a strong genetic component, with approximately 70% and 20% concordance rates in monozygotic (Identical) and dizygotic twins respectively. A genetic study discovered 15 psoriasis susceptibility regions, known as the psoriasis susceptibility 1–15 (PSORS1–15), that were thought to be the key contributors to psoriasis genetic pathogenesis. From a histological point of view, psoriasis is classified into early stage and advanced stage.<sup>139</sup>

According to *Ibn Zohr*, the skin accumulates an excessive amount of abnormal *sauda*, which hinders nutrition and induces skin malfunction, so that the skin loses its ability to extract abnormal *Saudawi khilt*. As a result, skin tissues become dead and fall off in the form of scales.<sup>18</sup>

**Ali Ibn-e-Abbas Majoosi (930-994 AD)**, discussed in his book *Kamil-us-Sana'ah* that when *balgham-e-mirari* (bilious phlegm) gets mixed with blood then the *tabi'at* (physis) of the body, expels that *khilth-e-ghaleez* (viscous humor) from internal organs towards the skin which accumulates within the skin resulting in the scaling of the skin, associated with chronic intense itching. Sometimes, this abnormal condition develops due to *zof-e-jild* (weakness of the skin) because when the *tabi'at* (physis) tries to expel the wastes i.e., *akhlal-e-ghaleeza* (viscous humors) towards the skin, it is unable to expel them out and resolve those waste humors due to *zof-e-dafey'ah* (weakness of expulsive power) of the skin. Hence, the waste humors accumulate here and cause the skin to become scaly and itchy.

**Etiology:** - In Unani system of medicine *Ghair Tabai Sawdāwī* (Abnormal black

bile)<sup>19,23,24,25</sup> *Muhtaraq Khilt-e-Sawdā*<sup>25</sup>, *Khilte-Hareef Wa Laza* (Irritant Humours)<sup>22</sup>, *Muta'affin Raqīq Bukhārāt* (putrefied liquid vapours)<sup>22</sup>, *Balghamī Shor Mirari* (Salty Phlegm)<sup>21,23,49,56</sup> *Balghamī Zojaji*<sup>22</sup>, *Khushk Boraqi Maada*<sup>11</sup>, *Fasād-e-Khoon*<sup>49,79</sup> are the factors responsible for the cause of this disease. In modern medicine, the exact cause of psoriasis is still unknown but it is considered to be an autoimmune disease and several factors.<sup>1</sup> Genetic factors e.g. autosomal dominant inheritance or polygenic, monozygotic twins etc., triggers, trauma e.g. scratches, injuries and surgical incisions, infections e.g. β hemolytic streptococcal throat infections often precede guttate psoriasis and HIV infection precipitate explosive psoriasis, drugs e.g. anti-malarial, β-Blockers, anti-malignant, immunosuppressive, NSAID, lithium etc. are known to cause psoriasis from drug reactions, immunological factors e.g. helper T-cells play a key role, biochemical changes: e.g. increased level of cyclic nucleotides, arachidonic acid, polyamines, calmodulin etc., endocrinal factors, and others; smoking, low humidity, emotional stress, obesity and alcoholism can exacerbate.

#### Classification of Psoriasis:

**Chronic Plaque Psoriasis/Psoriasis vulgaris:-** is a chronic inflammatory skin disease characterized by sharply demarcated erythematous plaques with a whitish scale.<sup>2</sup> It is the most common form of psoriasis, accounting for over 90% of all cases. Erythematous scaly patches or plaques commonly afflict extensor surfaces. This is by far the most popular manifestation.<sup>27</sup> It is well-defined, sharply demarcated, erythematous plaques varying in size from 1 cm to several centimeters, irregular, round to oval in shape, and most often located on the scalp, trunk, buttocks, and limbs, with a predilection for extensor surfaces such as the elbows, knees and are relatively symmetrical in distribution.<sup>1,2</sup>

**Guttate Psoriasis:** Guttate psoriasis is characterized by erythematous squamous papules that appear as droplets and are distributed across the body. Over the trunk, the palms and soles are spared. It occurs mostly in adolescents and young adults, and may be the first sign of psoriasis. Usually, it develops after two weeks of an acute beta-hemolytic streptococcal infection (after a sore throat) and is self-limiting, resolving within 3-4 months.<sup>1,2,27,28</sup>

**Erythrodermic Psoriasis/Exfoliative erythroderma:** -Erythrodermic psoriasis is an uncommon and severe type of psoriasis, with an estimated prevalence of 1% –2.25% among psoriatic patients. It may develop gradually from chronic plaque type or acutely with little preceding psoriasis. In addition, the irritant effect of tar or dithranol, as well as the withdrawal of systemic medication, can trigger this form of psoriasis. The condition includes erythema, edema, pruritus, ill-defined psoriatic plaques, scaling, hair loss, and rarely exudative lesions and involving at least 75% of the body surface area.

**Pustular Psoriasis:**-During etiopathology, when the collections of neutrophils in the stratum corneum are large enough to be apparent clinically, it is termed Pustular psoriasis.

**Two types of Pustular psoriasis exist:** a) The generalized form (Type Von Zumbusch) is a rare but severe form of disease. The onset is usually sudden, with hundreds of tiny sterile pustules erupting on a red surface.

(b) Localized type (Palmo Plantar Pustulosis), which affects primarily the palms and soles, is more common. This is a chronic condition characterized by small sterile pustules with a red base that leaves brown macules or scaling.<sup>7</sup> Acute generalized pustular psoriasis is often associated with systemic symptoms such as fever, chills, malaise, anorexia, nausea, and severe pain and may result in hypocalcaemia and hypoalbuminemia, as

well as polyarthralgia and neutrophilic cholangitis induced cholestasis.<sup>1,2,28</sup>

**Scalp Psoriasis:** Psoriasis of the scalp is an interfollicular skin condition. In the Asian population, 75 % to 90 % of psoriasis cases include the scalp. Scalp psoriasis can manifest in a number of ways, including mild disease, more severe and recalcitrant forms, and thickened crusted plaques that can affect the entire scalp. These lesions may start at the hairline and spread outward, affecting the facial area and leaving noticeable plaques and desquamation.

**Nail Psoriasis:-** It is considered as one of the complicated forms of psoriasis to treat and fingernails are more often affected than toenails. Based on a literature review, the prevalence of nail psoriasis ranges between 4.2% - 69% and affects nearly 80% of patients with plaque psoriasis.<sup>29</sup> Psoriasis can affect any element of the nail apparatus, i.e. nail bed or matrix, or both. The shedding of the parakeratotic cell column in the nail matrix causes the pits to be thin, circular, and shallow. The parakeratotic region may be shed as the nail grows out from under the proximal nail fold, similar to how scale is shed from the skin.<sup>30</sup> The nail plate starts to discolor. An accumulation of parakeratotic material in the nail bed may cause brownish red, oval, red, or round lesions. The phenomenon is known as the Olfleck phenomenon.<sup>2</sup>

**Palmo-planter psoriasis:-**It is a persistent, localized chronic disease of the palms and soles that affects 3-4 % of all psoriasis patients. The main clinical features are sterile intraepidermal pustules, erythema, fissuring, and scaling. It appears to be a disorder of the eccrine glands which are mostly on palms and soles.

**Clinical Features:** - It should be carefully examined, because of psoriatic lesion is characterized by its particular morphology and the site of predilection.

**Morphology: -**

Primary lesion in psoriasis is a mild itchy papule or plaque, which is well demarcated, indurated, erythematous, scaly or plaque.

**Site of predilection: -**

According to Koebner or Isomorphic phenomenon, it affects the pressure points e.g. elbows, knees, scalp (from where it may spill on to the forehead and nape of neck), extensor surface, lumbosacral area and back.

**Signs:**

**Koebner's Phenomenon/Isomorphic response:-** The Koebner phenomenon refers to the appearance of new psoriatic lesions in psoriatic patients in the stable skin regions following an injury/trauma. It occurs more frequently during a flare of the disease

**Membrane of Berkley:** When the scales are fully scraped off, the stratum mucosum (basement membrane) is exposed as a moist red surface with red spots indicating dilated capillaries.<sup>31</sup>

**Auspitz sign:** These capillaries are ripped at the tips of elongated papillae and on further scratching, leading to several bleeding points.<sup>32</sup>

**Worhoff's Ring:** The presence of a surrounding area of hypopigmentation is uncommon, and it is usually linked to treatment, most often with topical corticosteroids or UV radiation; the cause is unknown, but experimental studies indicate that prostaglandin E2 deficiency is the cause.<sup>33</sup>

**Signe de la tache de bougie / Candle grease sign:** When a psoriatic lesion is scratched with the point of a dissecting forceps, even from the non-scaling lesions, candle grease like scales may be repeatedly formed.<sup>1,2,32</sup>

**Diagnosis:-**

Diagnosis of the psoriasis may be on the basis of family history of psoriasis, previous attacks, presence of itchy lesions (at particular sites e.g. elbow, knee, scalp, back

and nails), lesions covered with silvery scales, candle grease sign, Auspitz sign and Koebner phenomenon. Seasonal variations also may be responsible for psoriasis. Sometime skin biopsy for typical histopathology and skin scrapping (KOH smear) may be needed to confirm the disease and to distinguish from other skin disorders. Following investigations may also be helpful for the diagnosis of psoriasis  
**TLC** -Its value may be raised in psoriasis.

**ESR** -Normal in psoriasis but in generalized pustular psoriasis it may be elevated.

**Serum calcium** -In pustular and erythrodermic psoriasis the calcium is decreased in serum. **Immunoglobulin** -It is generally normal but IgA deficiency and monoclonal gammopathy are documented in association with psoriasis.

**Skin biopsy** -It is performed to confirm the diagnosis by histopathological examination of psoriasis.

**Differential Diagnosis:**

1. Discoid Eczema
2. Seborrheic Dermatitis
3. Pityriasis Rosea
4. Secondary Syphilis
5. Cutaneous T cell Lymphoma
6. Tinea Ungum
7. Lichen Simplex Chronicus
8. Borderline Tuberculoid Leprosy
9. Discoid Lupus Erythematosus

**Comorbidities and Complications of Psoriasis:-**

Psoriasis mostly affects the skin and has no life-threatening complications, although it can also affect the joints, nails, and other body systems. Its severe form is connected with numerous diseases that have similar pathogenic factors, such as metabolic syndrome, psoriatic arthritis, Crohn's disease, lymphomas, and other neoplasms, erectile dysfunction, uveitis, and psychological/psychiatric disorders.<sup>34</sup>

**Management:** The main aim of psoriasis treatment is to control epidermal proliferation and to expel out the abnormal

humor from the body. All diseases in Unani medicine are treated with a comprehensive treatment plan and emphasis is made on restoring the altered humours and correction of temperament. To manage *Bars-e-Aswad*, Unani scholars primarily use diet modifications to regulate and balance the external factors (e.g., air, water, and food) involved in disease through *Ilāj bi'l-Tadbīr wa Ghiza* (dietotherapy & Regimenal therapy) and if the condition does not improve then *Ilāj bi'l-Dawā* (pharmacotherapy) is recommended.

### **Usool-e-Ilaj (Principle Of Treatment)**

Unani scholars has emphasized the Usool-e-Ilaj (principle of treatment) in the following; evacuations of black bile (Istifragh or Tanqiyah Sauda), use of blood purifier (Tasfeeh-e-Dam), use of Munzijate Sauda (Melancholic concoctives), use of Mushilate Sauda (Melancholic purgatives), Tabreed Badan (genesis of ratoobat or fluids in the body), try to restore normal temperament (Tadeele Mizaj), correct the digestion (Islahe Hazm), and topical application of jali (detergent), murakhi (emollient), murattib and mohallil (anti-inflammatory) advia in the form of tila, zimad and roghan (jelly, ointment, or oil).

### **Ilaj (Treatment):-**

In the Unani system of medicine, the principle of treatment is based on the following treatment methods or modalities: Ilaj Bil Dawa (pharmacotherapy) Ilaj Bil Ghiza (diet therapy), Ilaj Bil Tadabeer (regimental therapy).

**Ilāj bi'l-Ghiza (Diet Therapy):-** Unani physicians often suggest dietotherapy as the first line of treatment or as adjuvant therapy with other modalities of treatment.<sup>35</sup> Psoriatic patients are advised to avoid intake of food that increases the production of *Saudāwi Māddah* (black bile). *Ali Ibn al-Majusi* advised the patients to avoid meat and sweet items.<sup>33</sup> *Ibnul Qaf* recommended avoiding sour and salty diets that produce *Balgham* (phlegm) and *Sawdā* (black

bile).<sup>52</sup> *Ibn Sīnā* advised to avoid alcohol consumption.<sup>5</sup> *Akbar Arzāni* advised patients to consume a cold and moist diet for *Tarteeb Mizāj* (change temperament) rich in fresh milk, lamb meat, and bottle gourd.<sup>24,27</sup>

### **Ilāj bi'l- Tadbīr (Regimenal therapy):-**

These therapies are used for modulation of *Asbāb-i-Sitta Darūriyya* by *Istifragh-e-Akhlāt -e- Radiya* (evacuation of morbid humours) or *Tadeel-e-Mizāj* (restoration of normal temperament) of the body.<sup>36</sup> Regimens like *Faşd* (venesection), *Hijāma* (cupping), *Ta'liq* (leeching) *Ĥammam* (bath) and *Ta'rīq* (sweating) are beneficial in *Taqashshur al- Jild*.

(a) **Faşd (Venesection):** *Faşd* is an ancient medical procedure that involves collecting blood from a patient's punctured vein in order to extract excessive or unhealthy humours in order to treat or avoid illnesses or diseases.<sup>34</sup> For *Taqashshur al- Jild*, *Aḥmad Ibn Muḥammad al-Ṭabrī* prescribed venesection on both hands on *Rag-e-Ba'saleeque* (basilic vein) and if patients condition allows then repeat the process with a gap of 7 days.<sup>22</sup>

(b) **Hijama (Cupping):** It is a form of local humour evacuation that removes toxins from the skin's surface. It stimulates the lymphatic system, improves blood circulation, decreases stress, and thus aids in the healing process.<sup>37</sup> *Zakariyya-al-Razi*,<sup>38</sup> *A'zam Khān*,<sup>9</sup> *Qarashi*,<sup>17</sup> approved *Hijāma* as a treatment for *Taqashshur al- Jild*.

(c) **Ĥammam (Bath):** It is a specific type of bath designed for the human body to induce perspiration, minimize *Lazoojat-e-Akhlāt* (humor viscosity), and remove waste products through the skin.<sup>164</sup> *Alī Ibn 'Abbās al-Majūsī* and *Akbar Arzāni* advised daily *Ĥammam* in *Taqashshur al-Jild* patients.<sup>14,19</sup> *Tazaha bil shams* or *Ĥammam shamsi* (sun bath) is exposure of the body to the sunlight. It is prescribed for 15 to 30 minutes in the morning.<sup>14</sup>

(d) **Tariq (Diaphoresis):** *Ta'rīq* is the process to speed up the secretions of the

sweat glands from the skin to excrete the *Mawaad-e-Fasida* (waste matter) from the skin, to purify the blood, improve dermal nutrition and enhance body texture.<sup>36</sup>

(e) **Irsal-e-Alaq (Leeching):** It is a method of evacuation of morbid humours from the body with the help of leeches. *Ali ibn Sahal Rabban al-Tabri* prescribed the application of leech in the case of *Sa'fa Qishiri* (having similar clinical features as scalp psoriasis).<sup>22,38</sup>

**Ilāj bi'l-dawā (Pharmacotherapy):-**

Classical Unani literature have references that *Bars-e-Aswad* is treated by *Ilāj bi'l-Dawā* (pharmacotherapy). The drugs of animal, mineral or plant origin are used in crude form, either a single drug, or in compound form. It follows two steps:

(a) Topical therapy:

(b) Systemic therapy:

- *Tila* of *murda sang*, *sirka* and *roghan gul*.<sup>11,33</sup>
- *Tila* composed of *haldi*, *hina*, *murdar sang*, *zaravand*, *post anar*, *sirka*, *sharab* and *roghan gul* may be applied locally.<sup>11</sup>

- *Roghan gandum*,<sup>39</sup> *roghan banafsha*, *roghan nilofar*, *roghan badam*, *roghan khardal*,<sup>11,22,32</sup> *Roghan hindi*,<sup>40</sup> *marham basaliqoon*<sup>41</sup>. *marham ahmar*<sup>5</sup> and paste of *tukhm jarjeer*, *tukhm mooli* and *kundur* with *sirka* may be applied externally on affected parts.<sup>42</sup>

As per the *Unani* system of medicine, skin diseases can be due to the accumulation of unwanted and waste metabolic products in the blood. So drugs that aid in purification, such as *shahtra*, *charaita*, *ushba*, *chobchini*, *sandal safed* and *surkh* and *mundi* etc,<sup>43</sup> are used to treat the disease.

- Decoction *afteemoon*, *ghareeqoon*, *halaila siyah*, *bisfaij*, *ustukhuddoos*, *munaqqa*, *injeer*, *hajr Armani* and *lajward* should be given<sup>5</sup>
- Decoction of *halaila zard musaffa*, *kishmish munaqa*, *maghz fuloos khayar shambar*, *ghareeqoon*, *usarah shahtara* with sugar should be given<sup>50</sup> *Sufoof chobchini*,<sup>42</sup> *Sufoof Ushba*,<sup>42</sup> *Majoon Najah*,<sup>42</sup> *Itrifal Shatra*,<sup>42</sup> *Tiryayq Farooque* (1.75 gm) with *Sharbat Aslussoos*(35 gm) should be given.<sup>23</sup>

**Table 1: Systemic agents in management of plaque psoriasis.<sup>1,2</sup>**

Agent	Dosage	Mode of Action	Indication
Methotrexate	Test dose of 2.5-5mg 7.5-25mg weekly (for adult)	Inhibits DNA synthesis Potent Anti-inflammatory action Suppresses lymphocytes	Pustular psoriasis Erythrodermic psoriasis Plaque psoriasis
Acitretin	25-50mg daily	Regulates growth and terminal differentiation of keratinocytes	Pustular psoriasis Erythrodermic psoriasis
Cyclosporine	3mg/kg	Inhibits cell mediated immunity due to inhibition of lymphocyte mitosis and release of lymphokines	Pustular psoriasis Psoriatic Erythroderma

**Table 2: Topical agents in management of psoriasis.<sup>1,2</sup>**

Agent	Dosage	Mode of action	Indications
Coal tar (CT)	3-6% daily application of CT followed by exposure to ultraviolet light	Inhibits DNA synthesis Inhibits neutrophils and monocytes.	Localized plaque psoriasis Moderately extensive plaque psoriasis
Dithranol	0.05% is applied for 18-22 hours daily 0.25-2% used as short contact therapy	Reduces DNA synthesis	Localized plaque psoriasis especially if lesions are large
Tazarotene (Tazorac gel)	0.01-0.05% once daily application	Keratoplastic and keratolytic agent	Localized plaque psoriasis
Calcipotriol	0.005%	Reduces epidermal proliferation Restores normal horny layer	Localized plaque psoriasis in a patient who finds use of coal tar and dithranol

In the conventional system of medicine, the goal of the treatment is to decrease the severity and extent of cutaneous lesions so that they no longer interfere substantially with the patient's employment, social life, or well-being. The benchmark for the selection

of treatment routes is related to the severity of the disease. For mild to moderate conditions, topical route is preferred and for moderate to severe condition oral or biologics can be used.

In modern medicine, a variety of treatment options are available, including both non-pharmacological (emollients) and topical pharmacotherapy (topical corticosteroids, tazarotene, vitamin D analogs, calcineurin, salicylic acid, coal tar, phototherapy). Systemic therapy includes acitretin, cyclosporine, methotrexate and biologic therapies.

### Declaration by Authors

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