

Review Article

HERBAL APPROACH FOR THE MANAGEMENT OF PSORIASIS

Nishat Afza, Ramesh Kumar Gupta, Kislaya Mishra*

**Department of Pharmacology, Hygia Institute of Pharmaceutical Education and Research, Lucknow-226020, Uttar Pradesh, India.*

** Corresponding Author: Tel. No. : +91 7800020461, Email: kisalayamishra@yahoo.in*

ARTICLE INFO

Received 01 January 2022

Revised 15 January 2022

Accepted 25 January 2022

Keywords:

- Psoriasis
- Inflammation
- Plaque
- Psoriasis
- Chronic Skin Disease

ABSTRACT

Psoriasis is a common persistent, non-communicable skin illness that is influenced by genetic, immunological, and environmental factors. Pathophysiology of the disease includes mainly activated T cells into the dermis and release of cytokines from keratinocytes that lead to rapid growth of skin cells. Psoriasis is an inflammatory skin condition that causes viable factors including skin trauma, infection, emotional stress, alcohol abuse, medicines. There are various kinds of psoriasis such as plaque psoriasis, guttate psoriasis, scalp psoriasis, nail psoriasis, psoriatic arthritis, flexural psoriasis. Psoriasis can be treated with a variety of methods, including light therapy, topical medications, systemic medicines, and a homoeopathic approach. The therapeutic agents that either modulate the immune system or normalize the differentiation of psoriatic keratinocytes.

1. INTRODUCTION

Psoriasis is a chronic, non-infectious skin disease characterised by patches of thick red skin covered in silvery white plaques caused by T cell-mediated keratinocyte hyperproliferation [1]. The name “psoriasis” comes from the Greek word “psora,” which meaning “itch” [2]. Psoriasis is a widespread long-term skin disorder that has no cure, and the treatments available only relieve the symptoms. Psoriasis can be treated with a variety of methods, including light therapy, topical medications, systemic treatments, herbal medicines, and a homoeopathic approach. It is characterized by having non-communicable skin disease in which red scaly patches appear on any part of the body, face, lower back and soles of the feet and less common mouth and the area around genitals [3, 4]. The nails are the most commonly affected places, followed by the scalp, elbows, and knees. Excessive growth of epidermal cells leads in scales and red patches in this illness, which is referred to as plaque psoriasis [5]. Plaques usually appear on the skin of the scalp, elbows, knees and lower back. Psoriasis can also cause inflammation of the joints, which is called as Arthropathic psoriasis. Psoriasis is an autoimmune disease in which both genetic, immunological and environmental influences have a critical role. Psoriasis is an inflammatory skin condition that causes skin trauma, infection, emotional stress, alcohol abuse and medicines. psoriasis is one of the most very old disease continues now with the research of a good remedy [5].

1.1 Epidemiology of psoriasis:

Psoriasis is a skin disorder that affects about 125 million people of worldwide i.e 2 to 3% of the total population [6]. Although the disease is known to have higher prevalence in the polar regions of the world. The prevalence of psoriasis may vary from region to region due to variable environmental and genetic factors [7]. It has higher chances in females than males. Psoriasis does not spread from one person to another but it can be transmitted genetically [8].

- Psoriasis affects both sexes equally
- Around one-third of people with psoriasis report a family history of the disease.
- It can occur at any age [most commonly appears for the first time between the ages of 15 to 25 year.
- Onset with a second peak occurring at 55-60 years.
- It occurs mostly in the third decade of life [9]

1.2 Types of Psoriasis

- (a) **Psoriasis Vulgaris** : It is also known as plaque psoriasis is the most common type of psoriasis. It affects approximately 85% of the people. It can cover large area of skin. Most common sites include scaly plaques on the trunk and extensor surfaces of the limbs [10]. It is appear as red or

salmon pink in color covered by silvery patches and may be thick, thin large or small. Location :elbows, scalp, lower back and soles of the feet [11].

- (b) **Guttate psoriasis :** Guttate psoriasis is a type of psoriasis that appears as tear drop-shaped bumps on the skin that have fallen down on the body .Guttate psoriasis affects approximately 10% of the people and it is second most common type of psoriasis which is usually seen in children and young adult [12]. It is not common as plaque psoriasis.

There are three stages of guttate psoriasis:

1. Mild-cover about 3% of skin
2. Moderate-cover about 3-10% of skin
3. Severe-more than 10% and may be cover your entire body.

Guttate psoriasis is often triggered by bacterial streptococcal infections[strep throat] or viral respiratoryinfection [12].

- (c) **Inverse Psoriasis :** It is also known as flexural psoriasis. It appears as a smooth, shiny skin usually found in skin folds of the body such as armpits, under the breast and groin [13]. In inverse psoriasis complications include itching, fungal infections, and irritation.
- (d) **Pustular psoriasis:** It appears as a smooth, shiny skin usually found in skin folds of the form of psoriasis and present with widespread blisters of pustules [white pustules surrounded by red skin]. the skin becomes dry, red and tender. Generalised pustular psoriasis may affect randomly on any part of the body and comes with a fever, chills, severe itching, rapid pulse rate and muscle weakness. It can develop life threatening complications such as electrolyte balance and bacterial infection. Pustular psoriasis can be triggered by pregnancy emotional stress and infection Pustular psoriasis can be localized commonly to palms of the hand and soles of the feet which is known as palmoplantar pustulosis [14].
- (e) **Erythrodermic psoriasis:** Generalized Erythrodermic psoriasis is the most rare types psoriasis that looks like severe itching, burns, swelling and pains. It may affects large portions of the body and it spreads quickly. It can disrupt the body's ability to regulate temperature and for the skin to perform barrier function. Erythrodermic psoriasis is one of the most severe form of psoriasis that can lead to severe infections, including pneumonia and sepsis and congestive heart failure [15].
- (f) **Nail Psoriasis :** Nail psoriasis can affect the finger and toenails. The most often signs of nail psoriasis are pitting ,onycholysis, discolored nails and changes in nail shape and thick [16].

1.3 Pathophysiology of psoriasis

Psoriasis is recognized as the most prevalent auto immune disease caused by inappropriate activation of the cellular immune system. Psoriasis include mainly activated T cells in the dermis

and release of cytokines from keratinocytes that lead to rapid growth of skin cells. Normally the skin cells mature and are shed from the skin's surface every 28 to 30 days. When psoriasis develop the skin cells pile up, causing the visible lesion [17]. The pathophysiology of psoriasis must be understood in terms of the prominent pathologies occurring in both major components of the skin of epidermis and the dermis. There are two main hypotheses about the process that occurs in the development of the psoriasis. The first hypothesis is that psoriasis is primarily a disorder of excessive growth and reproduction of skin cells and The second hypotheses see the disease as being an immune-mediated disorder in which the excessive reproduction of skin cells is secondary to produce by the immune system [18].

Causes :

The exact cause of psoriasis is not clearly understood, but it is believed to have a genetic component and auto immune reaction. Psoriasis contains high level of compounds called leukotrienes. It is inflammatory mediators formed in leukocytes by the oxidation of arachidonic acid in the body. It is found in animal fat which include an autoimmune disease, emotional stress, hormones, skin injury, smoking, alcohol abuse, medicines including lithium and antimalarial drugs have been reported to trigger the diseases. Psoriasis is an immune system problem which causes skin cells to regenerate faster than normal rates [19].

1.4 Sign and symptoms

Psoriasis sign and symptoms can vary from person to person.

Common sign and symptoms include:

- Red patches of skin covered with thick, silvery scales.
- Small scaling spots[commonly seen in children]
- Dry, cracked skin that may bleed or itch
- Itching, burning or soreness
- Thickened, pitted or ridged nails
- Swollen and stiff joints

1.5 Treatment :

Psoriasis is a skin disorder that often comes and goes and there is no cure for psoriasis, but the available therapies, only relieve the symptoms. Treatment aims to stop the growth of skin cells and to reduce scales.

Psoriasis treatment is divided into three main types:

- Topical treatment
- Light therapy
- Systemic medications

(i) Topical treatment:

- **Corticosteroids:** They are the most frequently prescribed medications for treating mild to moderate psoriasis. They are available as ointments, creams, lotion, foam, sprays, and shampoos.

- **Coal tar:** Coal tar is the dry distillation product of organic matter heated in the absence of oxygen. Coal tar, in concentrations 5-20% can be compounded in creams, ointments, shampoos and in paste.
- **Tazarotene:** Tazarotene is a synthetic retinoid. It reduces mainly scaling and plaque thickness, with limited effectiveness on erythema. Tazarotene is available as a gel and cream and applied once or twice daily [20].

(ii) Light therapy:

Light therapy is the first line therapy for moderate to severe psoriasis, either alone or combination with medications.

- **Sunlight:** Ultraviolet light is a wavelength of light in a range too short for human eye to see. When exposed to the UV light, the activated t-cells in the skin are destroyed which leads to reduced scaling and inflammation.
- **Ultraviolet board band phototherapy:** UVB phototherapy is also called "Broadband UVB" can be used to treat single patches and psoriasis resistant to topical treatment.
- **Ultraviolet-A:** UVA light penetrates deeper in skin and makes more responsive to UVA exposure [21].

(iii) Systemic medication:

Psoriasis which is resistant to topical treatment and phototherapy is treated by medications that are taken internally by pill or injection. This is called systemic treatment.

- **Methotrexate:** This anti-metabolite is a very effective agent for treating psoriasis. It helps psoriasis by reducing the production of skin cells and suppressing inflammation.
- **Cyclosporine:** Cyclosporine suppresses the immune system and is similar to methotrexate in effectiveness. Major toxicities associated with cyclosporine therapy include nephrotoxicity and hypertension.
- **Oral retinoids:** Retinoids are known to have immunosuppressive and anti-inflammatory activity and to modulate epidermal proliferation and differentiation [22].

(iv) Herbal Medicines

The Herbal medicine is one of the oldest forms of medical treatment in human history. Medicinal herbs can be a good alternative for many diseases and conditions. They are low in cost and tend to have fewer side effects as compared to synthetic drugs. Natural medicines having a great source of easily available and effective therapy for skin disorders and it has been used for thousands of years. There are various herbal treatments of psoriasis which are useful for reducing the growth of skin cells and to reduce scales.

- (a) **Aloe vera-** Aloe vera is a very safe and natural remedy for psoriasis. It is a medicinal plant and has been used since ancient times to treat various health conditions. It has wound healing and anti-inflammatory properties, thus it is an effective and safe remedy for psoriasis.

- (b) **Oregano oil-** Oregano oil is an herbal supplement. It is an effective antifungal agent and has natural antibacterial properties which are useful in the treatment of psoriasis.
- (c) **Chamomile-** It is an anti-inflammatory herb applied as a cream.
- (d) **Lavender-** It is an anti-inflammatory oil mixed with olive oil and applied to the affected areas.
- (e) **Curcuma longa/curcuma domestica-** Turmeric has a unique antibacterial and anti-inflammatory properties, turmeric helps to relieve the swelling pain and inflammation associated with arthritis.

(v) Herbs for External used in Psoriasis:

- (a) **Aloe vera:** It is an effective remedy for treating psoriasis. Applied in gel form to reduce inflammation and also improve hydration.
- (b) **Chamomile:** It is an anti-inflammatory and antibacterial herb applied as a cream.
- (c) **Lavender:** It is an antiseptic and anti-inflammatory oil mixed with coconut oil and massaging the mixture to the affected areas of the skin.
- (d) **Almond oil:** Applied after using other herbs for soothing dryness that comes along with psoriasis.
- (e) **Oatmeal:** It helps to reduce skin swelling and itching.

(vi) Herbs to take Internally for Psoriasis:

- (a) **Milk thistle:** It is one of the most powerful herbs. It can help regenerate and repair damaged liver cells. Taken as a tea and capsule.
- (b) **Berberine** (Oregon grape, barberry, gold thread): Anti-inflammatory, antioxidant and prevents toxin formation in the bowel. Use as a tea or tinctures or capsules.
- (c) **Purslane:** It contains high quantities of vitamins A, C & E which support skin health.

2. CONCLUSION

From different studies, it is evident that the activity of psoriasis is important. Medicinal plants, herbs are known to Ayurveda in India since ancient times. All the Ayurvedic therapies adopted as a part of various research studies proved to have significant results in the management of psoriasis. Psoriasis is a dreadful disease affecting physical, mental and social status of victims. A review of alternative natural therapies provides some options for increasing safety and efficacy in the management of psoriasis. This review will surely prove to be an eye-opener for patients suffering from psoriasis as well as the medical practitioners, pharmacists, nurses and other persons involved in the treatment of psoriasis and help them to understand the disease in a much better way to carry out safe and effective treatment of the disease.

3. ACKNOWLEDGEMENT

None.

4. CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

1. Espinoza LR, Cuellar ML, Silveria LH. Psoriatic arthritis. *Curr Opin Rheumatol* 1992;4:470-8.
2. Ritchlin, Christopher; Fitzgerald, Oliver. *Psoriatic and Reactive Arthritis: A Companion to Rheumatology* (1st ed.). Maryland Heights, Miss: Mosby; 2007. p.4. ISBN 978-0-323-03622.
3. Kuchekar et al., "Psoriasis comprehensive review." *International Journal of Pharmacy and Pharmaceutical sciences.* , 2(6), 857-877,(2011).
4. Ortonne,J;Chimenti,S.,Luger,T.,Puig, L.; Reid, F.; Trueb, R.M. Scalp psoriasis:European consensus on grading and treatment algorithm. *J. Eur. Acad Dermatol. Venerol.* 2009, 23, 1435-1444. [Cross Ref] [PubMed].
5. Walter L.F., Gundula S. (1981). In *Histopathology of the skin*. 3rd Edn., Boston, Massachusetts: Lippincott., p.156-64.
6. Pariser DM, Bagel J, Gelfand JM, Kornman NJ, Ritchlin CT, Strober BE, et al., National Psoriasis Foundation Clinical Consensus on Disease Severity. *Arch Dermatol.* 2007;143:239-24. [PubMed] [Google Scholar].
7. Kaur I, Kumar B, Sharma VK, Kaur S, Epidemiology of Psoriasis in a clinic from north India. *Indian J Dermatol Venerol Leprol.* 1986;52:208-12. [PubMed] [Google Scholar].
8. Tomfohrde J. et. al. (1994), Gene for familial psoriasis susceptibility mapped to the distal end of human chromosome. *Science*, 264:1141- 1145.
9. Nevitt G.J., Hutchinson P.E. (1996). Psoriasis in the community; prevalence, severity and patients belief and attitudes towards the disease. *Br J Dermatol*, 135:533-537.
10. Ortonne,J;Chimenti,S.,Luger,T.,Puig, L.; Reid, F.; Trueb, R.M. Scalp psoriasis:European consensus on grading and treatment algorithm. *J. Eur. Acad Dermatol. Venerol.* 2009, 23, 1435-1444. [Cross Ref] [PubMed].
11. Griffiths CE, Barker JN. Pathogenesis and clinical features of psoriasis. *Lancet* 2007;370(9583):263-71.
12. Debra et al., *Medically Reviewed of psoriasis* 2019.
13. Beylot C. Clinical aspects of psoriasis. *Rev Prat* 2004; 54: 19-27.
14. Martin B.A., Chalmers R.J., Telfer N.R. (1996). How great is the risk of further psoriasis following a single episode of acute guttate psoriasis? *Arch Dermatol* , 132:717- 718.
15. Creamer D., Allen M.H., Groves R.W., Barker J.N. (1996). Circulating vascular permeability factor/vascular endothelial growth factor in erythroderma. *Lancet*, 348:1101.
16. Salomon J, szepietowski JC, Proniewicz A. Psoriatic Nails: study. *J Cutan Med Surg.* 2003; 7:317-321.
17. Gottlieb S.L., Gilleaudeau P., Johnson R., Estes L., Woodworth T.G., Gottlieb A.B., et al. (1995). Response of psoriasis to a lymphocyte-selective toxin (DAB389IL-2) suggests a primary immune, but not keratinocyte, pathogenic basis. *In Nat Med*, 1:442–7
18. Yaqoob P. (2003). Fatty acids as gatekeepers of immune cell regulation. *Trends n Immunol*, 24:639-645.
19. Papola et al; "Fight Psoriasis Naturally Through Ayurveda" *Indo American Journal Of Pharmaceutical Research* 2016.
20. Bagel J.(2009). Topical therapies for the treatment of Plaque Psoriasis. *Cutis*, 84 , Suppl 4, 3-13.
21. Juzeniene A, Moan J. Beneficial effects of UV radiation other than via vitamin D production. *Dermatoendocrinol.* 2012 4:109-17.
22. Murphy G, Reich K. In touch with psoriasis topical treatments and current guidelines. *J Eur Acad Dermatol Venereol* 2011;25:3-8.