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Review Article

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DIFFERENT STRATEGIES FOR THE MANAGEMENT OF PSORIASIS

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ABSTRACT
Psoriasis is a chronic autoimmune inflammatory disease of the skin that characterized by hyper proliferation and poor differentiation of keratinocytes, that results in regions of thick, red skin covered in silvery scales. These spots can be itchy or painful. It affects around 2-3% of the global population. Psoriasis can be ranged as mild, moderate and severe. For the treatment of psoriasis, various approaches are available such as topical agent, phototherapy, systemic treatment, synergistic approach, novel carrier and herbal therapy, which are effective in management of psoriasis symptoms. The objective of the current review is to compile various effective approaches for the management of psoriasis along with the active pharmaceutical agent synthetic as well as herbal.

INTRODUCTION

Psoriasis is a chronic, inflammatory non-contagious, auto-immune disease that primarily affects the skin and seen in about 2-3% of population world-wide [1]. The word “psora” a Greek word which means “to-itch”, “scurf” or “rash” [2]. It is commonly an inheritant disease, signalized by scaly, red and itchy plaques. The most frequently affected areas are the entire scalp and can also spread to the back of neck, forehead or behind ears, arms, elbows, in the armpits, under the breasts, chest, around the genitals, knees, legs, toenails and fingernails. It affects males and females similarly and also affects children, adult, older peoples and may occur at any age of existence. It is much more common in people amongst the ages of 15 and 35, According to National Psoriasis Foundation [3]. The etiology of psoriasis includes genetic factor or in some extent due to environmental factors. Psoriasis can be ranged as mild, moderate and severe. Mild psoriasis leads to building of rashes and when it becomes moderate the skin turns scaly. In severe conditions, the red patches may be present on skin surface and become itchy. This affects a person’s professional and social life psychological burden including anxiety, depression, and suicidal thoughts and behaviour [4].

The normal mechanism of body is to form new skin cells every month to replace the skin which is shed off. But, in case of psoriasis the new skin cells propagated rapidly within days rather than weeks. This leads to accumulation of dead skin on

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the skin surface resulting in thick patches of red, dry and itchy skin [5].

Sign and Symptoms

Psoriasis signs and symptoms can be varying from person to person [6]. Common signs 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.

Diagnosis

The diagnosis of psoriasis is basically based on the appearance of the skin. There are no special blood tests or diagnostic procedures for psoriasis. Some-times a skin biopsy or scraping may be required to rule out other disorders and to confirm the diagnosis. Skin from a biopsy will shows clubbed Rete pegs if positive for psoriasis. Another sign of psoriasis is that when the plaques are scraped, and there is pinpoint bleeding from the skin below. Diagnosis of psoriasis is made easily by clinical examination of skin. Usually no tests are required to diagnose psoriasis, but to find out other complications blood tests, urine test and imaging studies are performed [7].

Treatment

Although there is no cure for psoriasis, there are multiple effective treatment options viz, topical treatments, light therapy or phototherapy, oral medication, systemic therapy, biologic agents and herbal treatments [8].

Topical Treatments

Topical treatments like (creams, lotions, gels, ointments, moisturizers applied to the skin) are usually the first line treatment and they help to reduce the accelerated build-up of skin cells and inflammation [9].

Table 1: Topical Agents Used in Psoriasis Treatment

S No	Agents	Uses	Formulation
1.	Topical Corticosteroids	They are used as first line agents. They slow down cells growth by suppressing the immune system, which can reduces inflammation and relieves associated itching [10].	Betamethasone propionate 0.05%
2.	Topical vitamin D3 analogs	Calcipotriol (Calcipotriene), tacalcitol and calcitriol are the analogues of vitamin D3. Thecse are the agents blocks epidermal proliferation, enhances maturity of cells, and has anti-inflammatory effects. T	Calcipotriol 0.005%, Calcitriol 0.005%
3.	Coal Tar	It relieves in itching and swelling, It also inhibits the enzymes that contribute the pathogenesis of psoriasis**.**	Coal tar 5%, Coal tar 4.25%
4.	Dithranol	It is also called as the Anthralin. This is utilized for treating thick plaques of psoriasis.	Dithranol 1%
5.	Tacrolimus	It has immunosuppressant effect. It is beneficial over sensitive areas like the face, genitelia and intertriginousareas.	0.1%tacrolimus + 6% salicylic acid
6.	Salicylic acid	It is a keratolytic drug. It is used in combination with other topical medicament; it removes the upper layer of skin allowing the additional agent to penetrate more effectively into the deeper layers of the skin. It is used in a concentration between 2-10% [11].	Salicylic acid 6%, Clobetasol Propionate 0.05% + Salicylic Acid 3%

Phototherapy

Photochemotherapy are commonly used for the treatment of psoriasis include narrowband ultraviolet B (NB-UVB; 311–313 nm), broadband ultraviolet B (BB-UVB; 280–320 nm), targeted or excimer UVB laser (308 nm) and combination treatment of oral or topical 8-methoxypsoralen and UVA (PUVA; 320–400 nm). Initiation of BB-UVB, NB-UVB, or PUVA is usually recommended when at least 10% of the body surface area is involved or in patients who haven't responded to topical therapies both NB-UVB and PUVA are similarly efficacious; however, NB-UVB is generally used as firstline photo (chemo) therapy because of a decreased photodamage profile [12].

Ultraviolet light is exerts there effects by inhibiting the ability of epidermal Langerhans cells to present antigens to T cells, thus it downregulating the immune response [13].

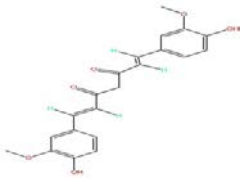
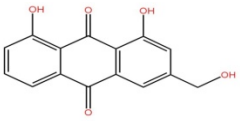
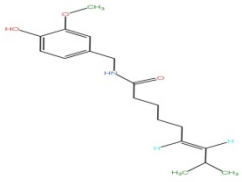
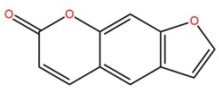
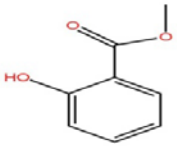
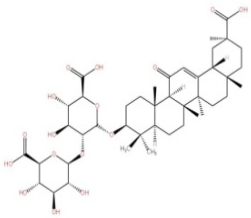
Conventional Systemic Treatments

Conventional systemic treatments are most commonly initiated when 10% or more than that BSA is affected; the generally used conventional systemic medications include methotrexate, cyclosporine, acitretin, and sulfasalazine. Methotrexate, cyclosporine, and acitretin are the agents used as first-line systemic [14]. Sulfasalazine and apremilast may be used when treatment with first-line systemic agents does not produce the desired effect; firstline therapy is contraindicated, or causes undesirable ADR [15].

Biologic Agents

Currently anti–IL-17 agents (secukinumab brodalumab, ixekizumab), anti–IL-12-23 inhibitors (ustekinumab) and anti–IL-23 inhibitors (guselkumab) are generally used biologic agents for plaque psoriasis and psoriatic arthritis [16]. The anti-TNF drugs (adalimumab, etanercept, infliximab, certolizumab pegol) were first on the market and still they are used for psoriatic arthritis, but newer agents have replaced the TNF inhibitors for increased efficacy in plaque psoriasis [17].

Table No.2. Phytoconstituent as anti-psoriatic agents

Phytoconstituent	Parts Use	Structure	Action	Major Source
Curcumin and curcuminoids, zingiberene, and sesquiterpenes	Rhizome-yellow to orange, cylindrical. Flowers—white to green.	Curcumin 	➢ Anti-inflammatory [18] ➢ Anti-angiogenic ➢ Anti-oxidant ➢ Anti-cancer	Turmeric, Haldi.
Aloe emodin, acemannan, salicylic acid	Leaves	Aloe Emodine 	➢ Anti-cancer ➢ Anti-virus ➢ Anti-bacterial, ➢ Anti-inflammatory ➢ Anti parasitic	Aloe vera, Gheekumari.
Capsaicin	Fruits	Capsaicin 	➢ Anti-inflammatory [19] ➢ Anti-oxidant ➢ Anti-cancer ➢ Anti-microbial ➢ Anti-septic	Capsicum Annuum, Cayenne, red pepper paprika, Christmas pepper.
Psoralen and ferulic acid.	Root	Psoralen 	➢ Anti-inflammatory ➢ Anti-cancer ➢ Anti-microbial	Chinese angelica, dong quay, Danggui, Angelica sinensis.
Methyl salicylate and Procyanidin	Leaves	Methyl Salicylate 	➢ Analgesic ➢ Counterirritant ➢ Anti-inflammatory	Wintergreen, Boxberry, Canada tea, Deerberry, Gaultheria procumbens.
Glycyrrhizinic acid, iso-flavones, coumarins, triterpene sterols	Rhizome and root	Glycyrrhizinic Acid 	➢ Anti-inflammatory ➢ Anti-oxidant ➢ Anti-ulcer ➢ Anti-cancer ➢ Anti-allergic	Glycyrrhiza glabra.

Natural Anti-Psoriatic Phytoconstituent

Nowadays, herbal constituents play an important role in the treatment of psoriasis and inflammatory diseases [20]. Phytoconstituent is promoted as one of the alternative therapeutical strategies for managing psoriasis [21]. Herbal plants and phytochemicals provide positive health benefit by acting on specific targets or by indirectly stabilizing conjugates that affects metabolic pathways. Compared to synthetic drug, herbal compounds are very much promising in psoriasis management [22], as they show less side effects and minimal toxicity in both in-vivo and in-vitro experiments [23]. Many herbal topical formulations have been marketed world-wide to treat psoriasis [24]. There are many advantages of using herbal phytoconstituent, including patents compliance, easy availability, low cost, and more than one mode of biochemical action for psoriasis management [25].

CONCLUSION

Psoriasis is a chronic, complex, lifelong condition which affects people's personal and social life. Thus, it's veritably important to treat the psoriatic condition with different management strategies. Conventional and topical treatment options have been salutary and continue to be part of most of the treatment rationale. Traditional and alternative treatment strategies have set up to be safe and efficacious but their use is restricted to certain areas. New and emerging medicine treatment options are helpful, but certain serious side effects and adverse events consequences in poor compliance and poor adherence to the treatment regimen. Alternative drug therapies, and natural remedies such as phytoconstituents, may be favoured by some patients who want to adopt a holistic approach for managing their symptoms.

Although there are numerous modern and alternative treatment strategies available to treat psoriasis, none of them have been proven to provide complete relief to patients, also some treatments are expensive; all require adequate monitoring and some of the treatments are only be accessed under the supervision of specialist. To achieve successful treatment of psoriasis, there is a need to focus on the development of stable and non toxic novel drug delivery systems using synthetic as well as phytoconstituents or modification of traditional systems to treat psoriasis, for that this review helps the formulator to choose the right combination of active ingredient to treat the psoriatic conditions.

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Nil

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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