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Review Article

Management of psoriasis -ayurveda and allopathy-A review

Abstract

Psoriasis is a chronic inflammatory skin disease that affects 2% to 4% of the population. Inflammatory arthritis develops in approximately 30% of patients with psoriasis and can have a major effect on activities of daily living and quality of life. Peripheral joint involvement in patients with psoriatic arthritis can be oligo articular or poly articular and can cause joint destruction. Several medications are used to treat psoriatic arthritis, and the choice of agent and the timing of administration in the course of the disease depend on disease manifestations, their severity, and prognostic factors. Therapy typically involves the sequential use of nonsteroidal anti-inflammatory drugs.

Introduction

Psoriasis is a widespread skin condition where the skin develops areas that become thick. It is usually found to be covered with silvery scales [1]. Even though psoriasis is considered a skin disease, it is really the result of a disordered immune system [1,2]. It occurs when skin cells suddenly rises from below the surface of the skin and pile up on the surface before they can mature. Generally this process (also called turnover) takes about a month, however in psoriasis it may occur in only a few days. These areas become reddened, inflamed, patches with white scale on them. It tends to be worst in those with cancer, AIDS or autoimmune disease [3]. Psoriasis areas are worsened by scratching and small skin injuries or irritations. Psoriasis may itch or burn. The skin may crack or split in areas that bend [3]. Psoriasis is considered as an autoimmune disease where genetic and environmental factors have a significant role. Psoriasis is a dry, inflammatory and ugly skin disorder, which can involve the entire system and is not contagious [3]. The most frequently affected sites are the scalp, tips of fingers and toes, palms, soles, umbilicus, gluteus, under the breasts and genitals, elbows, knees, shin etc [3,4].

Allopathy vs ayurveda

The word Allopathy is derived from the Greek word *állos* (other or different) + *pathos* (disease or suffering), which means "other than the disease."

Ayurveda is a Sanskrit word originated from "Ayus" meaning life and "Veda" meaning knowledge or science. Hence the term Ayurveda means "The knowledge of Life [5]."

Treatment

In allopathic methodology, the doctors mainly concentrate on the symptoms of the disease and not on the root cause of the disease. Allopathy offers only a partial cure as the drugs are made only to treat the symptoms and not the root cause.

In contrast, Ayurveda follows the "Five Great Elements" (Prithvi, Jal, Agni, Vayu, and Akash) theory. According to this methodology, all these elements must be in harmony with the 'fault', 'tissue' and the 'impurity'. Ayurveda deals with the balance between the three elemental energies (Doshas), Vatt (Air+Space="wind"), Pitta (Fire+Water-"bile") and Kapha (Water+Earth="phlegm") [5].

Side effects

Allopathy has its own series of side effects. It is one of the major disadvantages of Allopathy. Each prescribed medicine is associated with some side effects, and to cure those we have to take more medicines; in this way the cycle continues.

When it comes to Ayurveda, we blindly believe that the Ayurvedic medicines can cause us no harm as they are prepared using herbs and natural ingredients. If not used properly, these medicines can cause adverse effects as per the body's reaction to the medicines. Also, the medicines must be used in their purest forms without any adulteration [5].

The use of Ayurvedic medicines have been increasing for skin diseases. Studies have been conducted to understand the view point of dermatologists concerning the effect of Ayurvedic therapy for psoriasis. They perceived that the impact of the Indian culture and the need for an improved outcome were

the primary reasons for the use of Ayurvedic medicines by the patients [6].

The main objective of this review is to undertake systematic reviews of controlled clinical trials of herbal medicine (HM) for psoriasis. Nowadays, the use of chemical agents as medicine for treating different disorders and ailments has provoked other serious side effects for human beings. Hence it is need of hour to develop medicine with little or no side effects. In this regard herbal medicine is the best solution. These herbs and medicinal plants provide an array of broad spectrum of activity. It was felt that the use of such medicinal plants would be beneficial for treating different skin diseases such as eczema, itching psoriasis.

This review also compares the adverse reactions, relapse of the disease and duration of treatment in Ayurveda and Allopathy for Psoriasis.

Types of psoriasis

Plaque psoriasis (psoriasis vulgaris): It is the most common form of psoriasis. It affects majority of people with psoriasis. Plaque psoriasis typically appears as raised areas of reddened skin covered with silvery white scaly skin. These areas are called plaques [3].

Pustular psoriasis: It appears as raised bumps that are filled with non-infectious pus (pustules). The skin under and nearby pustules is red and tender. Pustular psoriasis can be seen in localized, commonly to the hands and feet, or generalized with widespread patches occurring randomly on any part of the body [3,7].

Nail psoriasis: Produce a variety of changes in the appearance of finger and toe nails. These types of changes include discoloration under the nail plate, pitting of the nails, thickening of the skin under the nail, loosening (onycholysis) and crumbling of the nail [3,8].

Guttate psoriasis: It is characterized by copious small oval (teardrop-shaped) spots. They appear over large areas of the body, such as the trunk, limbs, and scalp. Guttate psoriasis is associated with streptococcal throat infection [1,3].

Flexural psoriasis (inverse psoriasis): It appears as smooth inflamed patches of skin. It is found in skin folds, mainly between the thigh and groin, the armpits, under an overweight stomach (pannus), and below the breasts (infra mammary fold) [3,9].

Erythrodermic psoriasis: It involves the extensive inflammation and exfoliation of the skin over most of the body surface and may be accompanied by severe itching, swelling and pain. It is often the result of an exacerbation of unstable plaque psoriasis, particularly after the abrupt withdrawal of systemic treatment. This type of psoriasis may be fatal, because more rigorous inflammation and exfoliation disturb the body's ability to regulate temperature and for the skin to perform barrier functions [3,10].

Pathophysiology

Cutaneous inflammatory T-cell-mediated activation needs 2 signals mediated via cell-cell interaction by surface proteins and antigen-presenting cells, such as dendritic cells or macrophages: (1) Interaction between T-cell receptor and antigen and (2) Co stimulation, that is mediated through various surface interactions.

Activated T-cells migrate from lymph nodes and the blood stream into skin and release cytokines (INF γ , IL-2) which induce pathologic changes. Local keratinocytes and neutrophils produce other cytokines like TNF- α and IL-8. T-cell production and activation leads to keratinocyte proliferation.

Studies of histocompatibility antigens illustrate associations with human leukocyte antigens (HLA) C ω 6, TNF- α and IL-3 [11].

Epidemiology

Psoriasis can found in male and female equally and can occur at any age, However it most commonly appears for the first time between the ages of 15 and 25 years. Prevalence of this disease in western populations is estimated to be around 2%-3% [12].

Etiology

Environmental factors: The environmental triggering factors can be mechanical injury, ultraviolet rays and chemical injury; various infections; prescription drug use; psychological stress, smoking; and other factors. The most important of these is infection with group A streptococci. Streptococcal throat infections frequently precede outbreaks of guttate psoriasis which can then result in chronic plaque psoriasis. Psychological stress plays a very crucial role [13,14].

Genetic factors: Research studies found that there is a clear genetic basis in psoriasis, as the incidence was found to be much greater amongst first and second degree relatives of patients with psoriasis [13].

Immunologic factors: It has been proved that psoriasis is an autoimmune disease. Studies show elevated levels of dermal and circulating TNF- α . Psoriatic lesions are accompanied by increased activity of T cells in the underlying skin [13,15].

Several factors are found to aggravate psoriasis. They include stress, excessive alcohol consumption, and smoking. Individuals with psoriasis might suffer from depression and loss self-esteem. Certain medications such as lithium salt and beta blockers have been reported to trigger or elevate the disease [3]. Excessive alcohol consumption, smoking and obesity may worsen psoriasis or make the management of the condition difficult. Individuals suffering from the advanced effects of the human immunodeficiency virus, often show signs of psoriasis [12].

Symptoms

- Plaque psoriasis occurs in approximately 90% of the psoriasis patients. Lesions are erythematous, red-violet

in color, at least 0.5 cm in diameter, well demarcated, and typically covered with silver flaking scales. They may be seen as single lesions at pre-disposed areas (eg: knees and elbows) or generalized over a wide body surface area.

- Pruritis may be severe.
- Psoriatic arthritis includes both psoriatic lesions and inflammatory arthritis like symptoms. Distal interphalangeal joints and adjacent nails are mostly involved, but knees, elbows, wrist and ankles may be affected [11].

Treatment

Topical therapy

Corticosteroids: These have anti-inflammatory, anti-proliferative, immunosuppressive and vasoconstrictive effect. They are available in different strengths. Topical corticosteroids are generally applied to the skin twice a day. Short-term treatment is often effective in improving, but not entirely eliminating psoriasis. Long-term use or overuse of highly potent (strong) corticosteroids can cause local adverse effects like thinning of the skin, acne, contact dermatitis, hypertrichosis, folliculitis, hypopigmentation and systemic effects include hypothalamic-pituitary-adrenal axis suppression and less commonly Cushing's syndrome [11].

Calcipotriene: It is a synthetic vit D₃ analogue which binds to vit D receptors which inhibit keratinocyte proliferation and enhance keratinocyte differentiation. It also inhibit T lymphocyte activity [11]. Since calcipotriene can irritate the skin, it is not recommended for use on the face or genitals. It is sometimes combined with topical corticosteroids to decrease irritation [1,16]. Calcipotriene 0.005% cream, ointment or solution is applied once or twice daily [11]. Use of more than 100 grams of calcipotriene per week may elevate the amount of calcium in the body to unhealthy levels [1,17]

Tazarotene: Tazarotene is a third-generation retinoid. It mainly reduces scaling and plaque thickness, with limited effectiveness on erythema. It is available as 0.05% and 0.1% gels, and a cream. When used as mono therapy, a large proportion of patients develop local irritation (especially with the 1% formulations) [3]. Adverse effects include a high incidence of dose-dependent irritation at application sites which results in burning, stinging and erythema [11].

Anthralin: Anthralin has a direct antiproliferative effect on epidermal keratinocyte, normalizing keratinocyte differentiation [11]. A 15 to 30-minute application of anthralin ointment, cream, or paste once each day is prescribed to treat chronic psoriasis lesions. Afterwards, it must be washed off the skin to prevent irritation. This mode of treatment often fails to adequately improve the skin, and it stains skin, bathtub, sink, and clothing to brown or purple. In addition, the risk of skin irritation makes it unsuitable for acute or actively inflamed eruptions [1]. Zinc oxide ointment or non medicated stiff paste must be applied to protect it from irritation [11].

Coal tar: It is keratolytic and may have anti-proliferative and anti-inflammatory effects. Formulations include crude coal tar and tar distillates (liquor carbonis detergents) in ointment, creams, and shampoos. Coal tar is used rarely due to limited efficacy and poor patient adherence and acceptance. It has a slower onset of action than calcipotriene [11].

Phototherapy

Sunlight: Much of sunlight is composed of bands of diverse wavelengths of ultraviolet (UV) light. When UV light is into the skin, it suppresses the process leading to disease, causing activated T cells in the skin to die. This process decreases inflammation and slows the turnover of skin cells that causes scaling. Therefore, exposing affected skin to sunlight is one of the initial treatments for the disease [1,18].

Ultraviolet B (UVB) phototherapy: UVB is light with a shorter wavelength that is absorbed in the skin's epidermis. A UVB phototherapy may be used for a few small lesions, to treat widespread psoriasis, or for lesions that resist topical treatment. A newer type of UVB, known as narrowband UVB, emits the part of the ultraviolet light spectrum band that is most helpful for psoriasis. Narrow band UVB treatment is superior to broadband UVB, but is less effective than PUVA (psoralen ultraviolet A) treatment. However, narrowband UVB treatment has its own risks. It can cause longer lasting and more severe burns than broadband treatment [1,19,20].

Psoralen and ultraviolet a phototherapy (PUVA): This treatment combines oral or topical administration of a medicine called psoralen along with exposure to ultraviolet A (UVA) light. UVA has a longer wavelength that penetrates deeper into the skin than UVB. The skin is made more sensitive to this light by psoralen. PUVA is normally used when more than 10 percent of the skin is affected or when the disease interferes with the person's occupation. However, it has more short term side effects. Care must be taken to avoid sunlight after ingesting psoralen in order to avoid severe sunburns, and the eyes should be protected for one to two days with UVA-absorbing glasses [1,21].

Systemic treatment

Acitretin: It is a retinoic acid derivative and the active metabolite of etretinate [11]. It is a compound with vitamin A-like properties that may be prescribed for severe cases of psoriasis that do not respond to other therapies [1,22]. It is more commonly used in combination with topical calcipotriene or phototherapy. The initial recommended dose is 25 or 50 mg; therapy is continued until lesions resolve [11]. Adverse effects include mucocutaneous effects like dryness of the eyes, nasal and oral mucosa, cheilitis, epistaxis, xerosis, brittle nails, burning skin and also hypertriglyceridemia [11]. Because this treatment may also cause birth defects, women must use effective contraception, 1 month before beginning and through 3 years after treatment with acitretin [1,23].

Cyclosporin: It is a systemic calcineurin inhibitor that is effective for inducing remission and for maintenance therapy of moderate to severe plaque psoriasis; also for

pustular, erythrodermic and nail psoriasis [11]. Adverse effects include hypomagnesemia, hyperkalemia, hypertension, hypertriglyceridemia, hypertrichosis and gingival hyperplasia [11]. Cyclosporine may impair kidney function; therefore, patients must be carefully monitored by a doctor [1,24].

Methotrexate: Due to its effects on T-cell gene expression, it has anti-inflammatory effects and also has cytostatic effects. It can be given orally, subcutaneously or intramuscularly. Adverse effects include stomatitis, macrocytic anemia, vomiting and hepatic and pulmonary toxicity. By giving oral folic acid 1-5mg daily, nausea and macrocytic anemia can be reduced [11]. As a precaution, it is not usually prescribed for those who have had active infections, anemia and liver disease [1,11].

Biologic response modifiers

Adalimumab: It is a monoclonal TNF- α antibody. It is used for psoriatic arthritis and also for treatment of adults with moderate to severe chronic plaque psoriasis who are candidates for systemic therapy or phototherapy [11]. Adverse reactions include infections eg. Upper respiratory and sinusitis [11].

Etanercept: It is a fusion protein which binds to TNF- α , fully humanized. It is indicated in psoriatic arthritis and moderate to severe plaque psoriasis. Adverse effects include respiratory tract and GI infections, local reactions at the injection site, nausea, vomiting, abdominal pain, headaches and rash [11].

Infliximab: It is a chimeric monoclonal antibody that is directed against TNF- α . It is indicated for psoriatic arthritis and chronic severe plaque psoriasis. Adverse effects include fatigue, fever, chills, diarrhea, headaches, pharyngitis and upper respiratory and urinary tract infections [11].

Alefacept: It is a dimeric fusion protein which binds to CD2 on T cells thereby inhibiting cutaneous T-cell activation and proliferation. It is approved for treating moderate to severe plaque psoriasis and psoriatic arthritis. Adverse effects are usually mild and they include flu-like symptoms, chills, dizziness, pharyngitis, nausea, headache, injection site pain and inflammation [11].

Ayurvedic treatment

Andira araroba: Using method-This powder is mixed with vinegar or lemon juice to form a thin, pasty mass, or is well incorporated with glycerin or starch paste, and is then applied over the eruption once or twice a day, for 5 to 8 days successively, in which period of time the cure is generally affected. Its application can cause a temporary uneasy sensation in the part to which it is applied. The eruption assumes a whitish appearance, and the surrounding tegument appears like a dark stain. For internal use, it can be taken in the form of pills, made by incorporating it with medicinal soap. For external application, by means of a small brush, or a tincture of the powder may be painted upon the affected parts [1,3].

Olive oil: Olive oil is an effective treatment for mild cases of plaque psoriasis. It can be massaged directly onto affected areas of the skin to reduce dryness and irritation as well as

to facilitate healing. Olive oil is reported to have antioxidant properties (vitamin E), which will be of use in the case of psoriasis, since free radicals have been linked to psoriasis outbreaks [1,3].

Milk thistle: Extract of Milk thistle (*Silybum marianum*), is also known as silymarin, is suggested by alternative medical practitioners to stimulate bile production in the liver and also to regulate the immune system. The herb keeps the blood clean and protects the liver, which makes it an effective psoriasis remedy [1,3].

Calendula officinalis: It is a short-lived aromatic herbaceous perennial. The leaves are oblong-lanceolate, hairy on both sides and with margins entire or irregularly waved or weakly toothed. *Calendula officinalis* belonging to the Family Compositae is some of the very common Indian herbs having various medicinal properties for the treatment of different kind of disease, viz. antifungal, wound healing and ant diabetic agents respectively [25].

Coleus: Although there is less scientific evidence, the Ayurvedic herb *Coleus* (*Coleus Forskohlii*) has been used historically as one of many herbal psoriasis remedies. *Coleus* is valuable in treating skin disorders such as psoriasis due to its ability to promote normal cell division [1,3].

Cayenne: Cayenne (*Capsicum annum*) has been regarded by many experts as an effective natural psoriasis remedy. This herb contains a substance known as capsaicin, which by depleting neurotransmitters from the sensory nerves, relieves pain and itching associated with psoriasis [1,3].

Aloe vera: According to a double-blind study published in *Tropical Medicine & International Health* in 1996, the topical application of aloe Vera is a very safe and natural psoriasis remedy. Patients who participated in the trial experienced a severe reduction in lesions and many were considered "healed" by researchers after four weeks of treatment. No adverse reactions were reported.

Other miscellaneous herbs

Burdock root, cleavers, bilberry, golden seal, yellow dock, red clover, and Echinacea are all mentioned in various herbal texts. Any of these herbal remedies for psoriasis can be consumed in the form of extracts, teas or tinctures. The various herbal remedies for psoriasis include: Psoralen corylifolia, *Coleus forskoli*, sarsaparilla, turmeric, curcumin, shark cartilage extract, oregano oil. Various antimicrobial agents such as *Azadirachta indica*, *Calendula officinalis*, *Cassia tora* are used in the treatment of psoriasis. In aromatherapy, carrier oils are mixed with oils from lavender, calendula, and bergamot and then massaged onto the affected skin [1,3].

Virechana procedure (Purgation Therapy)

This process comprises of three stages, which are as follows:

- *Purva karma* (initial procedure)

- *Pradhana karma* (main procedure)
- *Pashchat karma* (post procedure)

Purva karma (initial procedure viz. oleation and fomentation): *Purva Karma* of *Virechana* is *Deepana – Pachana, Snehana* and *Abhyanga-Svedana*. *Deepana* and *Pachana* was done by administration of *Panchakola* powder 2gm t.d.s. for 3 days. *Snehana* (oleation) before *Virechana* procedure is performed by '*Snehapana*'. '*Snehapana*' (internal oleation therapy) was made by pure Ghee. After obtaining of '*Samyaka Snigdha Lakshana*' (symptoms of proper internal oleation like oiliness of skin, passing stool containing fat, feeling of aversion of Ghee), after 5th day of '*Snehapana*', patient was subjected to perform '*Abhyanga* (oleation and massage) with '*Dashmoola* oil' and *Svedana* by '*Sarvanga Bashpa Sveda*' (fomentation done by using vapour to whole body) by using '*Dashmoola* decoction' for 3 days. For all these days, light and liquid warm diet was given. After that, on the fourth day morning, *Virechana* process was performed [26].

Pradhana karma (main procedure viz. purgation therapy): Before the administration of *Virechana* (purgation) Drug, *Abhyanga* (massage) by '*Dashmoola* oil' and *Svedana* (fomentation) by '*Dashmoola* decoction' was carried out in the morning of *Virechana* day. Pulse, blood pressure, respiration and temperature were recorded. It was recorded at regular interval during the *Pradhana Karma*. Patient was advised for empty stomach in the morning of *Virechana* day. As mentioned in classics, *Virechana* drug was administered after passing of morning time. Accordingly, the appropriate time for administration of *Virechana* drug was 9.45 a.m. on empty stomach. '*Virechana Yoga*' (purgative formulation) was made from 100 ml decoction of 25gm of *Triphala* powder (powdered form of *Terminalia chebula* Retz + *Eblica officinalis* Gaertn. + *Terminalia bellirica* Gaertn), *Trivruta* (*Operculana turpethum* Linn). Powder – 15gm, *Danti* (*Baliospermum montanum* Willd). Powder – 15gm. Patient was given hot water repeatedly in little quantities. After that patients were observed carefully to avoid complications. Number of motions after administration of *Virechana* drug were counted till the symptoms of proper purgation like stopping of purgation on its own, passing of stool with mucus in the last one or two motions, feeling of lightness in the body, and later improvement in sign and symptoms of the disease appeared [26].

Pashchat karma (post procedure of dietetic indication): The time period from the completion of *Vegas*, till the patient reached his normal diet is crucial and the specific management that has to be taken at this juncture is known as *Paschat Karma*. After the completion of *Virechana* (purgation), patient was kept on *Samsarjana Krama* (post procedure of dietetic indication) of considering the '*Shuddhi*' as '*Madhya*' type of '*Shuddhi*' (moderate purification). Patient was advised to take rest and eat thin rice gruel was given as a food and special diet is advised for 3 to 5 days [26].

Conclusion

Psoriasis is a really complex multifunctional inflammatory skin disease [3,27]. A new understanding of this intricate

disease has catalyzed the development of targeted biological treatments that are not without potential risk, however. A review of alternative natural therapies provides some options for enhancing safety and efficacy in the management of psoriasis [3]. Medicinal plants, herbs, spices and herbal therapies are known to Ayurveda in India since long times. Their use will be a booming factor in the treatment of this disease [1].

However, Ayurvedic medicines are not devoid of adverse reactions. The *Charaka Samhita*, which is a classic text book of Ayurveda, describes all the adverse reactions to medicines when they are prepared or used inappropriately [28]. Similarly, Charaka also describes, elegantly, various factors related to host to be considered when selecting medicines in order to minimize adverse reactions like the constitution of the patient, age, disease, tolerance (previous exposure), psychological state, digestive capacity, capacity for exercise, quality of tissues, physical proportions of the body and strength [28,29]. Certain minerals and metals are prescribed in Ayurveda, as medicines, to be given as *bhasmas* (incinerated mineral formulations) or combined with plants as herbo-mineral preparations. (e.g., *Arogyavardhini*). Their manufacturing procedures are stringent, and some adverse reactions are described when proper precautions are not taken while preparing and administering these medicines [28,30]. Even though these medicines are widely used in India, suspicions about their long-term safety arise due to the presence of toxic metals in them [28,31] and there are reports associated with adverse reactions [28,32].

In contrast to allopathic treatment, we can see that adverse reactions and disease relapse is lower in Ayurveda, with better tolerance and eco-friendly manner [33,34]. However, the treatment duration is longer and is difficult to treat sudden illness and accidents [35].

Nonetheless, high quality, clinical trials are required to establish the safety and efficacy of Ayurvedic drugs. The patient's benefit lies in the proper balance and evidence-based use of the two systems and this must be inspired especially in developing countries like India with inadequate doctor patient ratio [36].

This review will surely prove to be an eye-opener for patients suffering from psoriasis as well as physicians, pharmacists, nurses and other persons involved in the treatment of psoriasis and help them to comprehend the disease in a much better way to carry out safe and effective treatment of the disease [3].

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