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Psoriasis: A Peer Review Article

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Abstract:
Psoriasis is a chronic inflammatory skin disease that is characterized by sharply demarcated Erythematous plaques with whitish scale. Psoriasis is an immune-mediated, genetic disease manifesting in the skin or joints or both. A diverse team of clinicians with a range of expertise is often needed to treat the disease. Psoriasis provides many challenges including high prevalence, chronicity, disfiguration, disability, and associated comorbidity. As over a third of the extended kindred included affected relatives besides siblings, in addition to an analysis of allele sharing between affected sibling pairs, a novel linkage strategy was applied that extracts full non-parametric information. There are several types of psoriasis, each of which varies in its signs and symptoms: Plaque psoriasis, Nail psoriasis, guttate psoriasis, Inverse psoriasis, Pustular psoriasis, Erythrodermic psoriasis. Psoriasis is thought to be an immune system to create problem that causes skin cells to grow faster than usual. In the most common type of psoriasis is known as plaque psoriasis, this is the rapid turnover of cells results in dry, scaly patches. The cause of psoriasis isn't fully understood. It's thought to be an immune system problem where infection-fighting cells attack to the healthy skin cells by mistake. Researchers believe that both genetics and environmental factors play a major role in the condition is not contagious. psoriasis triggers the Infections, such as strep throat or skin infections Weather, especially cold, dry conditions, Injury to the skin, such as a cut or scrape, a bug bite, or a severe sunburn, Smoking and exposure to secondhand smoke, Heavy alcohol consumption, Certain medications including lithium, high blood pressure drugs and anti-malarial drugs, Rapid withdrawal of oral or injected corticosteroids.

Keywords: Plaque, Pustular, Psychological, Guttate, symptoms, Risk Factor

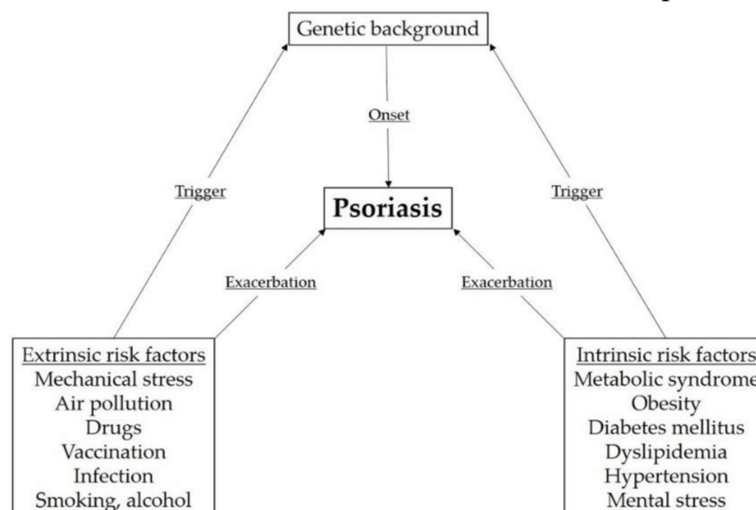
Introduction:

Psoriasis is a chronic inflammatory skin disease that is characterized by sharply demarcated erythematpus plaques with whitish scale [1]. The major susceptibility locus for psoriasis is psoriasis susceptibility 1 which lies within an approximately 220kb segment of the major histocompatibility complex on chromosome 6p21 [2]. The exacerbating factors for the Japanese population were observed to be stress(6.4% to 16.6%),seasonal factors(9.7% to 13.3%), infection(3.5% to 8.3%), sun exposure(1.3% to 3.5%), and B-blockers(0.9% to 2.3%) in past surveys from 1982 to 2012 [3]. Approximately 2% of the world's population suffers from psoriasis, although the prevalence of psoriasis varies depending on ethnicity [4]. Hepatotoxicity, nephrotoxicity, teratogenicity and cancer are the serious side effects of conventional systemic treatment [5]. A group of diverse medical and health care systems, practices, and productsthat are not presently considered to be part of conventional medicine is termed as Complementary and alternative medicine (CAM) [6]. The prevalence of CAM use among psoriasis patients was found to be between 42.5-69% in different studies [7]. Psoriasis is a chronic skin

condition that is often associated with systemic manifestations, especially arthritis [8]. The onset of psoriasis is most likely between 15 and 30 years of age but it can develop at any age [9]. Psoriasis remains something of a scourge, a curse to the afflicted and an offence to society but the amazing and alarming advances in science and their application to medicine in this century have by-passed a number of important ills, of which it is one [10]. It has been suggested as a psychosomatic disorder in the sense that stress or psychological distress is often advocated by patients as a causative or maintaining factor in disease expression [11]. More than 5% of the population of psoriasis patients and there are links between depression and pruritus and sleep difficulties that leads to active suicidal ideation [12]. The topically applied emollients, keratinolytics and antifungal agents and also topical corticosteroids act as primary drugs give variable symptomatic relief [13]. United states population has approximately 2.2% of psoriasis according to NIH (National Institutes of Health) [14]. 3% of the US population and an estimated 125 million people worldwide are affected by Psoriasis that is a chronic, immune-mediated skin disease [15]. Circumscribed, red, thickened plaques with an overlying silver-white scale that is characterization of psoriasis which is a common T cell mediated immune disorder. Name's derivation is from Greek word ' psora' which means itch. The scalp, tips of fingers and toes, palms, soles, umbilicus, gluteus,under the breasts and genitals, elbows, knees, shins and sacrum are the commonly affected sites [16].Cardiovascular disease, crohn's disease, chronic obstructive pulmonary disease, lymphoma, depression and metabolic syndrome are reported more commonly in psoriasis patients [17]. In India, the prevalence ranges from 0.44 to 2.8% [18]. Pustular, Erythrodermic, Inverse, Guttate, Plaque, Psoriatic, Nail and Scalp Psoriasis are the main and major classification of psoriasis [19]. 43% of psoriasis patients utilized complementary and alternative medicine, often in conjunction with conventional anti-psoriatic pharmacotherapy (APP) in Europe [20]. Morbidities such as psoriatic arthropathy, psychological, cardiovascular and hepatic disorder is associated because of psoriasis which is a lifelong immune-mediated inflammatory skin disease [21]. According to race and geographical location, psoriasis has a worldwide distribution.3% of the general population has an approach of peak prevalence in Scandinavia and northern Europe [22]. Maladaptive coping responses, problems in body image, self esteem, self concept and also feelings of stigma, shame and embarrasement regarding their appearance is experience in psoriasis patients [50].

Risk factors:

Figure 1: Risk factors for the onset and exacerbation of psoriasis [26]



Koebner phenomenon is the event where lesions appear in uninvolved areas after various injuries in patients with psoriasis [27]. New lesions of psoriasis are reported to be triggered by radiotherapy, ultraviolet and even a slight skin irritation [28]. Expression in both the nervous system and peripheral organs is a nerve growth factor (NGF) which is a neurotrophic factor [29]. Damage to the skin by oxidative stress is due to various air pollutants such as polycyclic aromatic hydrocarbon, volatile organic compounds, particulate matter, ozone, heavy metals, and UV. The pathogenesis of psoriasis is affected by cadmium which is one of the air pollutants [30]. B-blockers, lithium, anti-malarial drugs, interferons, imiquimod, angiotensin-converting enzyme inhibitors, terbinafine, tetracycline, NSAIDS, and fibrate drugs are the most widely accepted drugs [31]. Influenza and BCG vaccination may trigger the onset of psoriasis [32]. Alcohol abuse positively correlates with psoriasis severity and reduced treatment efficacy although the relationship between psoriasis and alcohol consumption is complex and multifactorial [33]. There is a positive association between body mass index (BMI), waist circumference and psoriasis [34]. Dyslipidemia was observed in 62.85% of the patients which included 70 patients having psoriasis [35].

Pathophysiology:

No distinct immunogen has been identified but psoriasis is an immune mediated disease with genetic predisposition [36].

Associated Symptoms:

Itching with an incidence of 54.7% is the major associated symptom. Nail involvement, arthritic symptoms and mucous membrane involvement are the other symptoms [46]. Pain, itching, burning and dry skin are the symptoms of psoriasis described in the medical literature [47].

Common signs and symptoms of psoriasis include:

- A patchy rash that varies widely in how it looks from person to person, spots of dandruff
- Rashes tending to be shades of purple with gray scale or brown or Black skin and pink or red with silver scale on white skin
- Small scaling spots (commonly seen in children)
- Dry, cracked skin that may bleed
- Itching, burning or soreness
- Cyclic rashes that flare for a few weeks or months and then subside

Types of Psoriasis:

Plaque psoriasis

The most common type of psoriasis, plaque psoriasis causes dry, itchy, raised skin patches (plaques) covered with scales. They may be few or many. They usually appear on the elbows, knees, lower back and scalp. The patches vary in color, depending on skin color. They affected skin might heal with temporary changes in color (post inflammatory hyper pigmentation), particularly on brown or Black skin.

Figure 2: Scaling Plaque in Psoriasis affecting the neck [38]

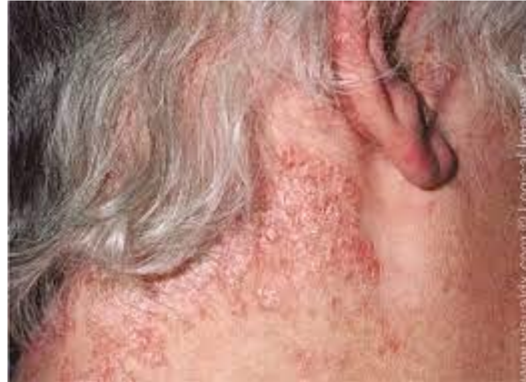
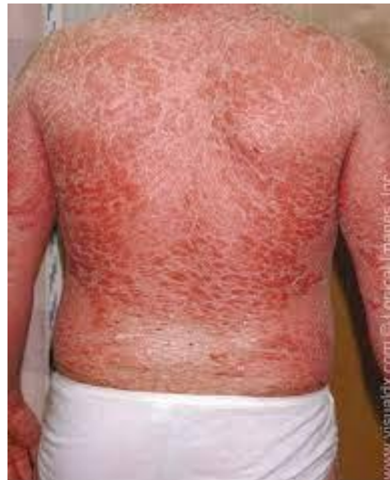


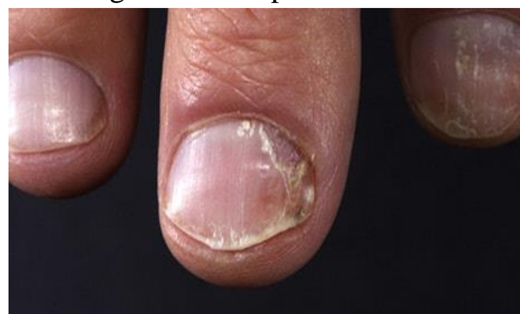
Figure 3: Erythrodermic psoriasis with widespread, confluent scaly plaques [40]



Nail psoriasis

Psoriasis can affect fingernails and toenails, causing pitting, abnormal nail growth and discoloration. Psoriatic nails might loosen and separate from the nail bed. Severe disease may cause the nail to crumble.

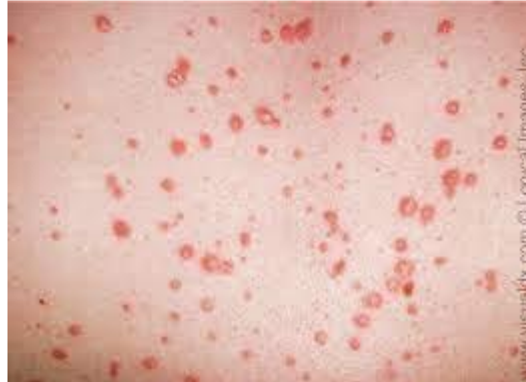
Figure 4: Nail psoriasis



Guttate psoriasis

Guttate psoriasis primarily affects young adults and children. It's usually triggered by a bacterial infection such as strep throat. It's marked by small, drop-shaped, scaling spots on the trunk, arms or legs.

Figure 5: Scattered, Erythematous papules in a patient with guttate psoriasis [42]



Inverse psoriasis

Inverse psoriasis mainly affects the skin folds of the groin, buttocks and breasts. It causes smooth patches of inflamed skin that worsen with friction and sweating. Fungal infections may trigger this type of psoriasis.

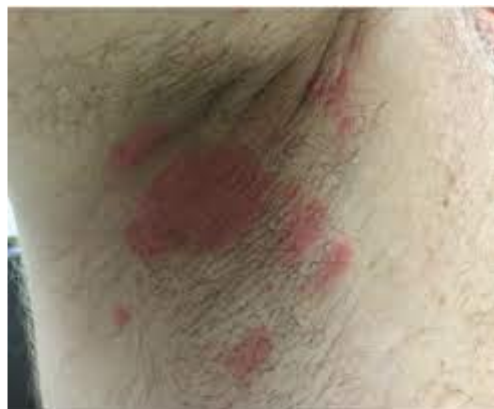
Pustular psoriasis

Pustular psoriasis, a rare type, causes clearly defined pus-filled blisters. It can occur in widespread patches or on small areas of the palms or soles.

Erythrodermic psoriasis

The least common type of psoriasis, Erythrodermic psoriasis can cover the entire body with a peeling rash that can itch or burn intensely. It can be short-lived (acute) or long-term (chronic).

Figure 6: Erythematous plaque in an inverse pattern in the axilla [39]



Clinical Features:

Characterized by well-defined round or oval plaques that differ in size and often coalesce, plaque psoriasis is seen in 90 percent of affected patients [37]. The current clinical extent of psoriasis (based on the PASI score), a score indicating psychological disability, and past severity based on treatment history has been incorporated by the Salford Psoriasis Index (SPI) [48].

Figure 7: Localizedpustular psoriasis on the hand [41]

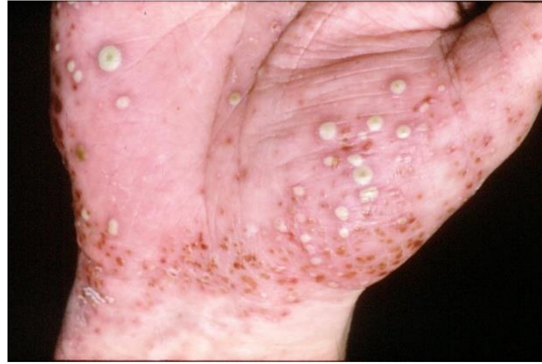


Table 1: Classification Criteria for Psoriatic Arthritis [43]

Table 1. Classification Criteria for Psoriatic Arthritis

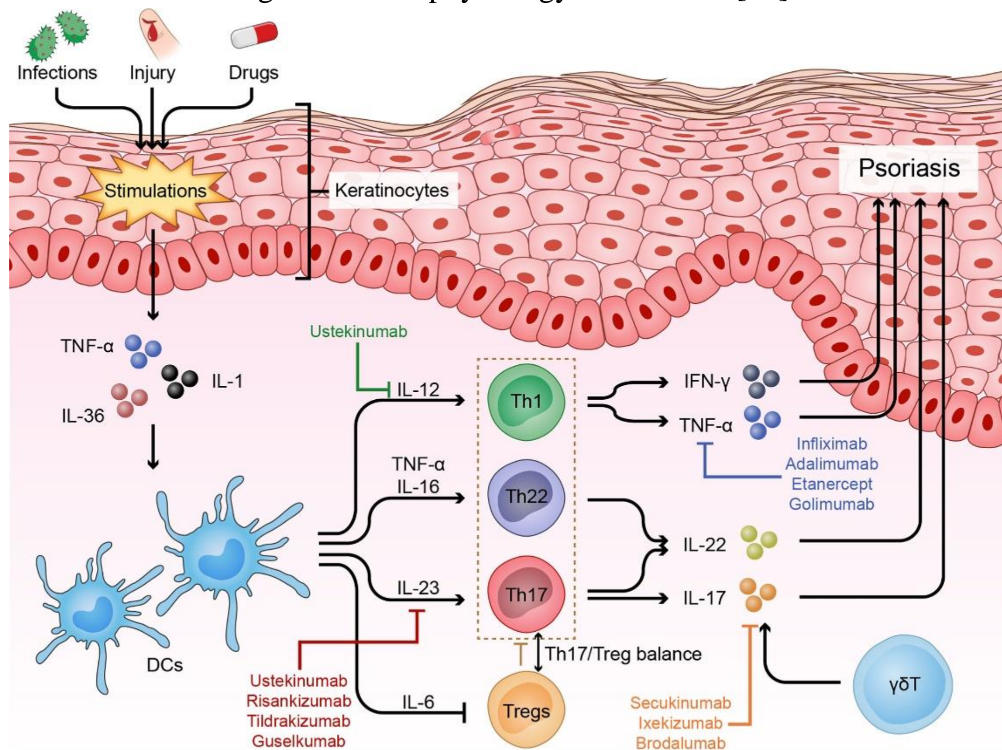
Established inflammatory articular disease
plus
Score of 3 or more based on the following clinical findings:
- Psoriasis
  - Current active psoriasis (2 points)
  - Negative test for rheumatoid factor (1 point)
  - Personal history of psoriasis (1 point)
  - Psoriasis in a first- or second-degree relative (1 point)
  - Typical psoriatic nail dystrophy (1 point)
- Dactylitis
  - Current swelling of an entire digit (1 point)
  - History of dactylitis confirmed by a rheumatologist (1 point)
  - Plain radiography of hand or foot showing juxta-articular new bone formation (ill-defined ossification near joint margins, excluding osteophyte formation; 1 point)

Information from reference 10.

Table 2: Common Co morbidities in Patients with Psoriasis [44]

Psoriatic arthritis
Depression
Hypertension
Diabetes
Metabolic syndrome
Cardiovascular disease, such as coronary artery calcification and myocardial infarction
Dyslipidemia
Crohn's disease and ulcerative colitis
Autoimmune diseases
Non-alcoholic fatty liver disease
Chronic obstructive pulmonary disease
Obstructive sleep apnea

Figure 8: Pathophysiology of Psoriasis [49]



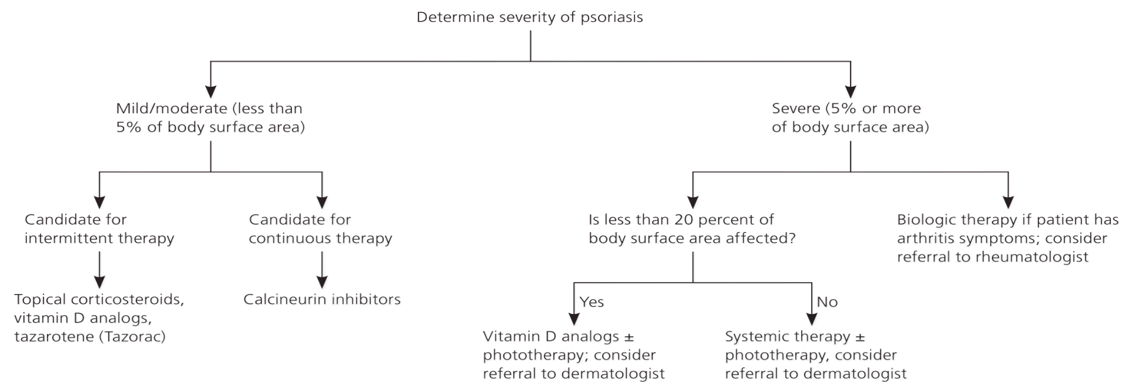
Differential Diagnosis and workup:

Inflammatory,infectious, and neoplastic conditions such as atopic dermatitis , seborrheic dermatitis, pityriasis rosea, syphilis and cutaneous T cell lymphoma are the differential diagnoses for psoriasis. A family history of psoriatic diseases and a comprehensive skin and nail examination, which includes evaluation of morphology and distribution of psoriasis lesions is included in the diagnostic workup for psoriasis. In the cases where presentation is not typical, a skin biopsy may be required.

Treatment:

Phototherapy, systemic retinoids, methotrexate, cyclosporine and newer biological therapies are the primary treatments for severe psoriasis [51]

Figure 9: Algorithm for a general approach to treatment of psoriasis [45]



Traditional Chinese Herbal Medicine:

An alternative method of therapy that can be used in the treatment of psoriasis in oral, topical, or injectable forms is traditional Chinese herbal medicine (TCHM) [23]. It is not easy to conclude the efficacy and safety of single plant in the treatment of psoriasis because most of the plants used in TCHM are not used in monotherapies [24]. The relevance in antipsoriatic effect of these topical multi-herbal formulations is its anti-inflammatory, anti-proliferative, anti-angiogenic, and tissue repair action of this plant [25].

Conclusion:

The standardisation of herbal products is very hard because the plant composed of many active ingredients and the concentrations of these ingredients change according to the plant growth conditions, time of harvest and method of extraction. The negative impact on physical, psychological and social dimensions of QOL can be determined to be greater than that created by even life-threatening illness. Therefore, effective treatment of psoriasis should be paid attention to.

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