

Review study of Psoriasis in Iraq

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Abstract: Psoriasis involves the skin and nails, and is associated with a number of comorbidities. Skin lesions are localized or generalized, mostly symmetrical, sharply demarcated, red papules and plaques, and usually covered with white or silver scales. Lesions cause itching, stinging and pain. Individuals with psoriasis are reported to be at increased risk of developing other serious clinical conditions such as cardiovascular and other noncommunicable diseases. Psoriasis causes great physical, emotional and social burden. Disfiguration, disability and marked loss of productivity are common challenges for people with psoriasis. Topical and systemic therapies as well as phototherapy are available.

Keywords: Psoriasis, Iraq, Inflammatory Disease, Skin Lesions, Comorbidities



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Introduction

Psoriasis

The skin is the most exposed boundary with the outside world, thus, setting cutaneous conditions apart from those affecting internal organs. Skin diseases are often obvious and visible to others. The chronic inflammatory skin disease psoriasis is one such condition.(1)

Psoriasis is a chronic autoimmune and noncommunicable inflammatory disease of skin and joints. The word psoriasis comes from a Greek word “Psora” which means being itchy and “iasis” means a condition. The disease has a worldwide prevalence of two percent, with a higher prevalence of about 4.6% in developed countries.

It is characterized by having sharply demarcated scaly, red, coin-sized skin lesions most often on the elbows, knees, scalp, hands and feet. Symptoms include itching, irritation, stinging and pain. Rarely, the entire skin surface of the body may be involved. Signs to diagnose psoriasis are koebner phenomenon and Auspitz’s sign.(2)

Psoriasis is a chronic proliferative and inflammatory condition of the skin. It is characterized by erythematous plaques covered with silvery scales, particularly over the extensor surfaces, scalp, and lumbosacral region.(3)

Psoriasis is a lifelong immune-mediated inflammatory skin disease, associated with morbidities such as psoriatic arthropathy, psychological, cardiovascular and hepatic diseases. In 2014, the World

Health Organization recognised psoriasis as a serious non-communicable disease and highlighted the distress related to misdiagnosis, inadequate treatment and stigmatisation of this disease. The Global Burden of Disease Study estimated that psoriasis accounted for 5.6 million all-age disability-adjusted life-years (DALYs) in 2016; at least three-fold that of inflammatory bowel disease.(4)

Known since ancient time, various biblical references to “leprosy” more likely represent psoriasis; consequently, psoriasis patients have been cast out from society in biblical and medieval times because of fear, ignorance, and prejudice. Recognized as a distinct entity by Robert Willan in the early 19th century and named by Ferdinand Hebra in 1841, psoriasis’ impact on quality of life is still far-reaching and profound in modern times, even in the absence of stigmatization. On the other hand, being one of the most common skin conditions.(1)

Etiology of Psoriasis

Etiology of this chronic condition is not clear. Stress is the most common etiological factor and patients with chronic disorders like Crohn’s disease are more likely to suffer from psoriasis.^{6,7} Drugs that appear to have a strong causal relationship to psoriasis are beta-blockers, lithium, synthetic antimalarials, nonsteroidal anti-inflammatory drugs (NSAIDs), and tetracyclines.⁸ Patients with severe form of this disease have an increased risk of cardiac co-morbidities.(5)

Classification of Psoriasis:-

Psoriasis can be classified as cutaneous psoriasis and systemic psoriasis. Cutaneous psoriasis can be subdivided into plaque, inverse, erythrodermic, pustular, and guttate forms. In addition to cutaneous manifestations, systemic comorbidities may present in systemic psoriasis. Psoriasis patients should undergo a complete history query and a thorough physical examination, including joints, and other systemic diseases. Optimal management of psoriasis depends on the type of psoriasis and the severity of the disease.(6)

Types of Psoriasis:-

There are different types of psoriasis, including:

1. **Plaque psoriasis:** This is the most common kind, and it appears as raised, red patches of skin that are covered by silvery-white scales. The patches usually develop in a symmetrical pattern on the body and tend to appear on the scalp, trunk, and limbs, especially the elbows and knees.
2. **Guttate psoriasis:** This type usually appears in children or young adults, and looks like small, red dots, typically on the torso or limbs. Outbreaks are often triggered by an upper respiratory tract infection, such as strep throat.
3. **Pustular psoriasis:** In this type, pus-filled bumps called pustules surrounded by red skin appear. It usually affects the hands and feet, but there is a form that covers most of the body. Symptoms can be triggered by medications, infections, stress, or certain chemicals.

4. Inverse psoriasis: This form appears as smooth, red patches in folds of skin, such as beneath the breasts or in the groin or armpits. Rubbing and sweating can make it worse.
5. Erythrodermic psoriasis: This is a rare but severe form of psoriasis characterized by red, scaly skin over most of the body. It can be triggered by a bad sunburn or taking certain medications, such as corticosteroids. Erythrodermic psoriasis often develops in people who have a different type of psoriasis that is not well controlled, and it can be very serious.(7)

Aimes of the study

- 1- Study the effect of the psoriasis disease on peoples lives.
- 2- Study the causes, types, symptoms, diagnosis and treatment of disease.
- 3- Study the pathogenesis and natural history of the disease.

Results and Discussion

Epidemiology:-

The worldwide prevalence of psoriasis is estimated to be approximately 2–3%. Although the disease is known to have higher prevalence in the polar regions of the world, its burden in a tropical/subtropical country like India cannot be underestimated. In a diverse country such as India, the prevalence of psoriasis may vary from region to region due to variable environmental and genetic factors. We found only six studies, mostly in a hospital setting, estimating the prevalence of disease among adult dermatologic patients. A higher prevalence in males has been reported with a peak age at onset is in the third and fourth decade of life. point prevalence of pediatric psoriasis was estimated to be 0.0002%. The peak age at onset among boys is in the 6–10 years age group compared to girls in 11–15 years age group. A positive family history may be elicited in 9.8–28% of the children. The age at onset of psoriatic arthritis varies from 35 to 50 years with no sex predilection. Nearly 70% of the patients develop psoriasis before articular involvement; in another 15%, arthritis precedes the onset of psoriasis by more than 1 year, and in the remaining 15% of the cases, the two conditions occur within 12 months of each other. The yearly estimated incidence and prevalence of psoriatic arthritis are, respectively, 3.0–23.1 cases/100,000 and 1–420 cases/100000 people, with similar results in Western countries and in China. Prey et al. in their systematic review of literature concluded that psoriatic arthritis may affect upto 24% of patients with psoriasis. Such data is lacking among Indian patients. In children, arthritis may precede psoriasis in 50% of cases. The mean age of onset in children is 9–10 years with female predominance.(8)

Pathogenesis of Psoriasis

External triggers of trauma or infection induce host cell-derived nucleotides, which make a complex with keratinocyte-derived antimicrobial peptides. This complex is recognized by antigen-presenting cells, such as plasmacytoid dendritic cells, and activates antigen-specific T cell expansion in the skin and lymph nodes. The plasmacyte dendritic cell produces type I interferons, which activate

the secretion of IL-23 and TNF by myeloid dendritic cells . These cytokines enhance the production of IL-17 and IL-22 by Th17 cells, which are activated by IL-1. IL-17 activates the production of TNF, CCL20, and antimicrobial peptides which enhance the inflammatory reaction in the skin and the proliferation of keratinocytes . The importance of these inflammatory cytokines has been proven by the specific cytokine inhibitors, which show strong anti-inflammatory action against psoriatic skin inflammation . As environmental factors, diet foods, microorganisms, and their products of fatty acids are also involved in the development of psoriasis. In addition, these inflammatory cytokines are not limited to skin inflammation, as they also develop into systemic inflammatory diseases; therefore, we next introduce representative systemic inflammatory diseases mediated by psoriatic skin inflammation.(9)

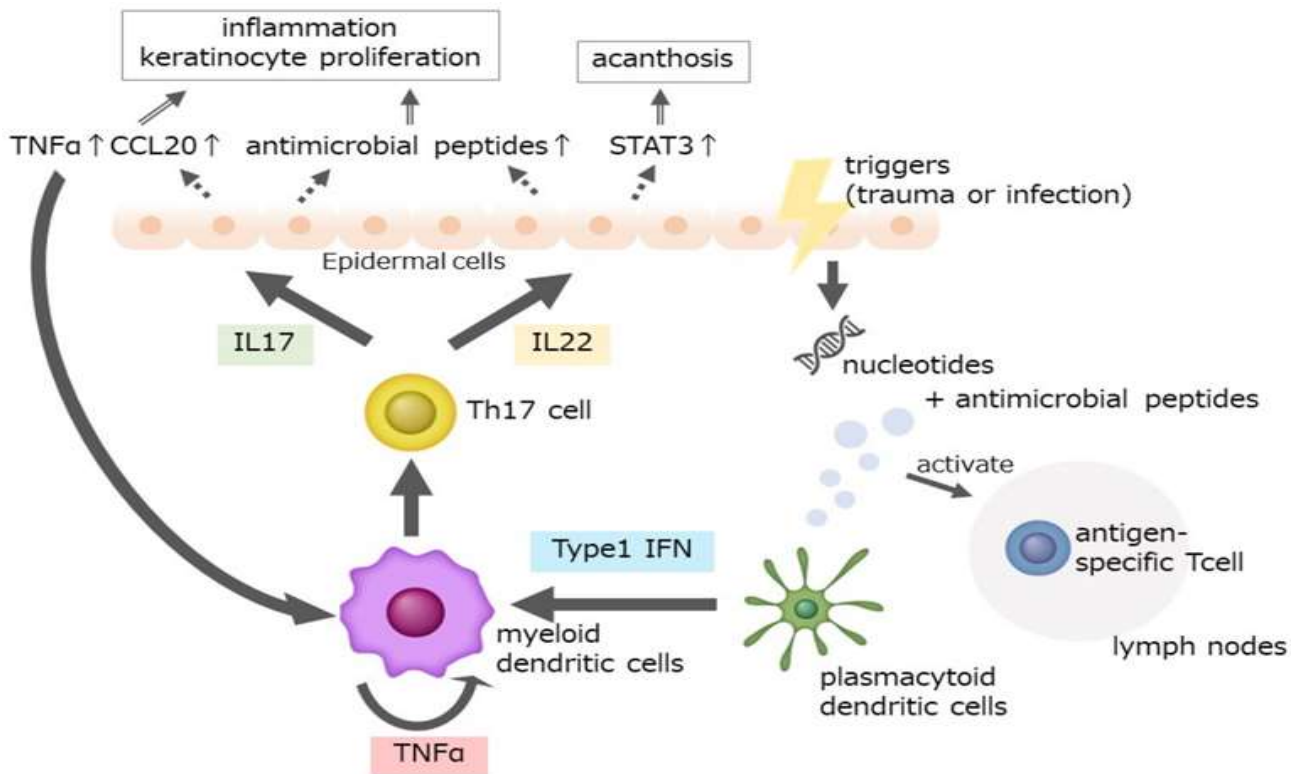


Figure 1)The pathogenesis of psoriasis. External triggers of trauma or infection induce host cell-derived nucleotides, which make a complex with keratinocytes-derived antimicrobial peptides. This complex is recognized by antigen-presenting cells, such as plasmacytoid dendritic cells, and activates antigen-specific T cell expansion in the skin and lymph nodes. Plasmacyte dendritic cell produces type I interferons, which activate the secretion of IL-23 and TNF by myeloid dendritic cells. These cytokines enhance the production of IL-17 and IL-22 by Th17 cells, which are activated by IL-1. IL-17 activates the production of TNF, CCL20, and antimicrobial peptides to enhance the inflammatory reaction in the skin and the proliferation of keratinocytes. The importance of these inflammatory cytokines has been proven by the specific cytokine inhibitors, which show strong anti-inflammatory action against psoriatic skin inflammation.

Causes of Psoriasis:

The cause of psoriasis is still not known, Psoriasis is an immune-mediated disease,, which means that your body's immune system starts overacting and causing problems. If you have psoriasis, immune cells become active and produce molecules that set off the rapid production of skin cells. This is why skin in people with the disease is inflamed and scaly. Scientists do not fully understand what triggers the faulty immune cell activation, but they know that it involves a combination of genetics and environmental factors. Many people with psoriasis have a family history of the disease, and researchers have pinpointed some of the genes that may contribute to its development. Nearly all of them play a role in the function of the immune, but experts agree that the lesions are the result of hyperproliferation and abnormal differentiation of the epidermis. The primary pathologic process likely lies in the immune system, specifically an aberration in the regulation of interleukin-2, growth factors, or adhesion molecules. Evidence for this theory comes from success in treating severe psoriasis with immunosuppressive drugs used in organ transplantation.(10)

Some external factors that may increase the chances of developing psoriasis include:

1. Infections, especially streptococcal and HIV infections.
2. Certain medicines, such as drugs for treating heart disease, malaria, or mental health problems.
3. Smoking.
4. Obesity.(11)

Clinical presentations of Psoriasis:

Psoriasis manifests in several ways: plaque, flexural, guttate, pustular or erythrodermic psoriasis. The most common form is plaque psoriasis, which presents as well-demarcated salmon pink plaques with silvery-white scale, typically in a symmetrical distribution and affecting the extensor surfaces (especially elbows and knees), trunk and scalp. Bleeding points may be noted where scales have been removed (Auspitz sign). Flexural psoriasis presents without much scaling and may affect the axillae, sub-mammary and genital areas. Guttate psoriasis causes an acute symmetrical eruption of drop-like papules/ plaques mainly involving the trunk and limbs, that is classically but not always preceded by streptococcal infection. Patients with guttate psoriasis may later develop plaque psoriasis. In rare cases of severe uncontrolled disease, psoriasis causes a widespread erythematous rash (erythroderma) that is life-threatening due to potential complications including hypothermia, risk of infection, acute kidney injury and high-output cardiac failure. Koebner phenomenon describes the appearance of psoriasis at skin areas affected by trauma. Nails may be affected in up to 50% of patients and may manifest as nail pitting (indentation in the nails), onycholysis (separation of nail plate from nail bed), oil spots (discoloration of the nailbed), dystrophy and subungual hyperkeratosis.(12)

Symptoms of Psoriasis

Symptoms of psoriasis vary from person to person, but some common ones are:

1. Patches of thick, red skin with silvery-white scales that itch or burn, typically on the elbows, knees, scalp, trunk, palms, and soles of the feet.
2. Dry, cracked skin that itches or bleeds.
3. Thick, ridged, pitted nails.

Some patients have a related condition called psoriatic arthritis, which is characterized by stiff, swollen, painful joints. If you have symptoms of psoriatic arthritis, it is important to see your doctor soon because this is one of the most destructive forms of arthritis. The symptoms of psoriasis tend to come and go. You may find that there are times when your symptoms get worse, called flares, followed by times when you feel better.(13)

Diagnosis:-

The diagnosis of psoriasis is primarily clinical. There are different clinical types of psoriasis (Table 1), the most common of which is chronic plaque psoriasis, affecting 80% to 90% of patients with psoriasis. The hallmark of classic plaque psoriasis is well demarcated, symmetric, and erythematous plaques with overlying

Silvery scale. Plaques are typically located on the scalp, trunk, buttocks, and extremities but can occur anywhere on the body. Patients might demonstrate nail involvement, which can present without concomitant plaques. Active lesions might be itchy or painful. Psoriasis can also present as an isomorphic response, where new lesions develop on previously normal skin that has sustained trauma or injury. The severity of disease can be helpful in guiding management and is classified as mild, moderate, and severe (Table 2).(14)

Evaluation and differential diagnosis. Less common variants of psoriasis include inverse psoriasis, pustular psoriasis, guttate psoriasis, erythrodermic psoriasis, and annular psoriasis. These variants can be differentiated from the common plaque type by morphology. Differential diagnoses include atopic dermatitis, contact dermatitis, lichen planus, secondary syphilis, mycosis fungoides, tinea corporis, and pityriasis rosea (Table 3). Careful observation often yields the diagnosis. For more atypical presentations, a skin biopsy might be helpful.(14)

Therapy of Psoriasis

Choice of treatment depends on many factors, mainly including patients and agendas, the former including the onset age, the duration, extent of disease, site of the lesions, the age of the patient, the type of psoriasis (cutaneous or systemic), pregnant or not, infection (especially tuberculosis or hepatitis B) or not, medical insurance covered or not, past therapy history and treatment willingness of the patients. The latter includes the efficacy, safety, price, response time, maintenance, frequency, and resistance of the drug. For moderate-to severe cutaneous psoriasis and systemic psoriasis, biological therapies could be considered (37). Biologics could target specific molecules which could be essential in psoriasis pathogenesis, such as tumor necrosis factor (TNF) α , interleukin (IL)-17, IL-23, and IL-12.(15)

Treatments for psoriasis are divided into five levels. The choice of treatment depends on the severity and response in the individual patient.(16)

Cutaneous psoriasis may resolve entirely after appropriate therapies targeting specific immune molecules. We suggest therapeutics for mild, moderate, and severe adult cutaneous psoriasis as shown in Figure 1. For mild cutaneous psoriasis, topical agents are recommended, or just a wait-and-see approach. For moderate and severe cutaneous psoriasis, topical agents, phototherapy, systemic non-biological therapy, and/or biologics could be chosen. Comorbidities could influence the treatment strategy. (Figure 2) lists selected therapeutics for adult systemic psoriasis with comorbidities. Treatment should be tailored to meet the needs of patients (Figure 2). It is recommended to select treatments from top to bottom for each category of systemic psoriasis. For the therapy of pediatric psoriasis for patients under 18 years. Briefly, pediatric failure to topical therapy may undergo phototherapy and systemic therapy (Figure 3). Long-term maintenance at the lowest effective dose with the least toxic therapy is the preferred approach. Till now, four biologics, etanercept, adalimumab, ustekinumab, and ixekizumab have been approved by FDA or EMA for pediatric psoriasis, which may be considered as first-line systemic agents. (17)

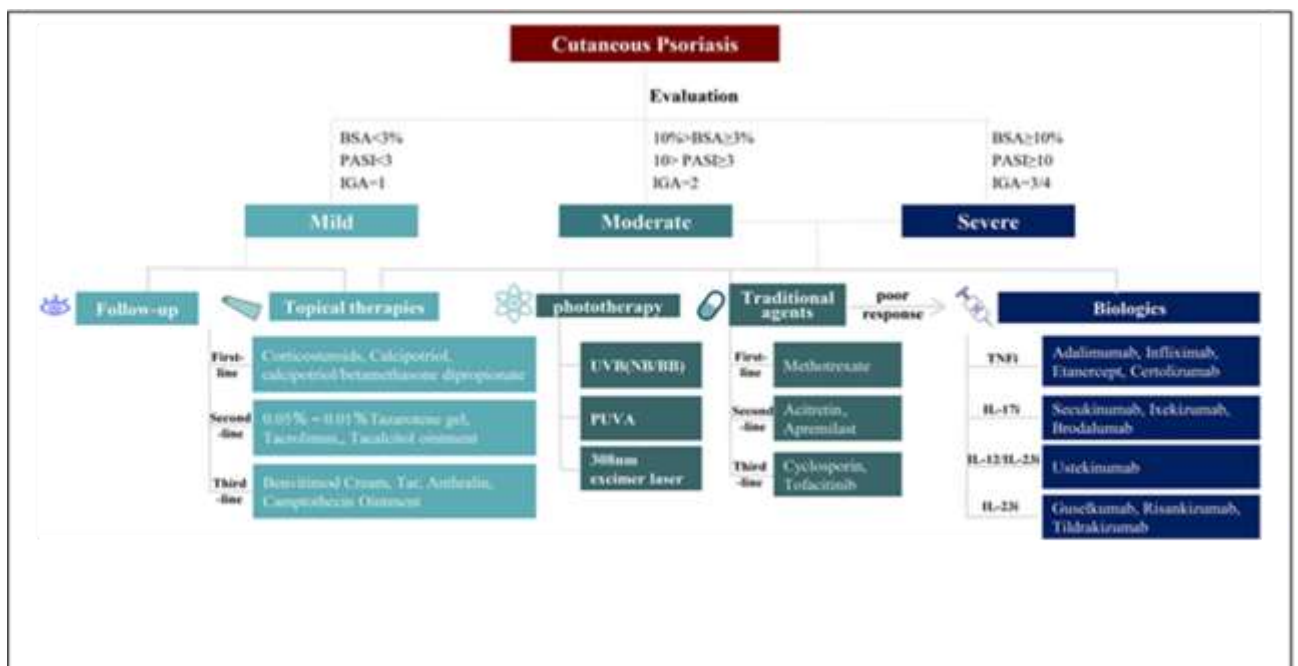


FIGURE 1 | Therapies for cutaneous psoriasis. Different treatments for mild, moderate, and severe patients with cutaneous psoriasis. For mild cutaneous psoriasis, follow-up and topical therapies are advised choice. For moderate to severe cutaneous psoriasis, topical therapies, phototherapy, traditional agents, and biologics can be selected one by one. BSA, body surface area; PASI, psoriasis area and severity index; IGA, investigator's global assessment; UVB, ultraviolet radiation b; NB, narrow band; BB, broad band; PUVA, psoralen plus ultraviolet radiation a.

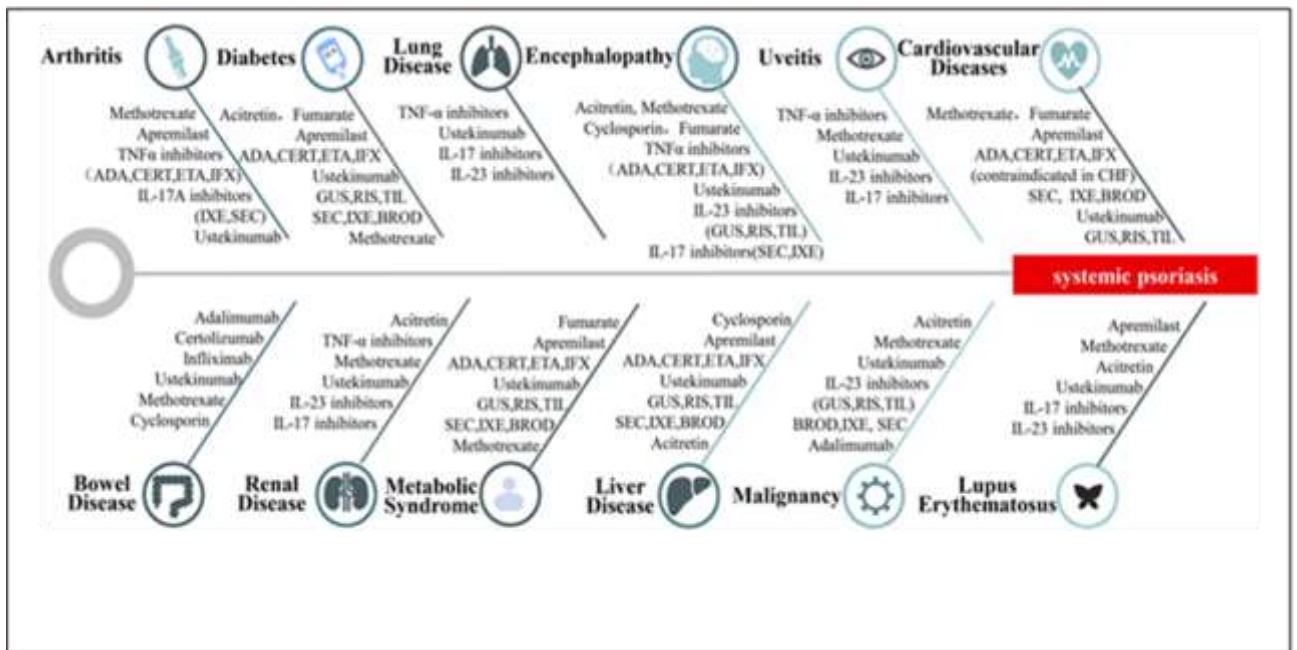


FIGURE 2 | Therapies for systemic psoriasis. Selection of treatments for different types of systemic psoriasis includes psoriatic arthritis, psoriasis with diabetes, psoriasis with pulmonary disease, psoriasis with brain diseases, psoriasis with uveitis, psoriasis with cardiovascular disease, psoriasis with bowel disease, psoriasis with nephropathy, psoriasis with metabolic syndrome, psoriasis with liver disease, psoriasis with malignancy, psoriasis with lupus erythematosus..

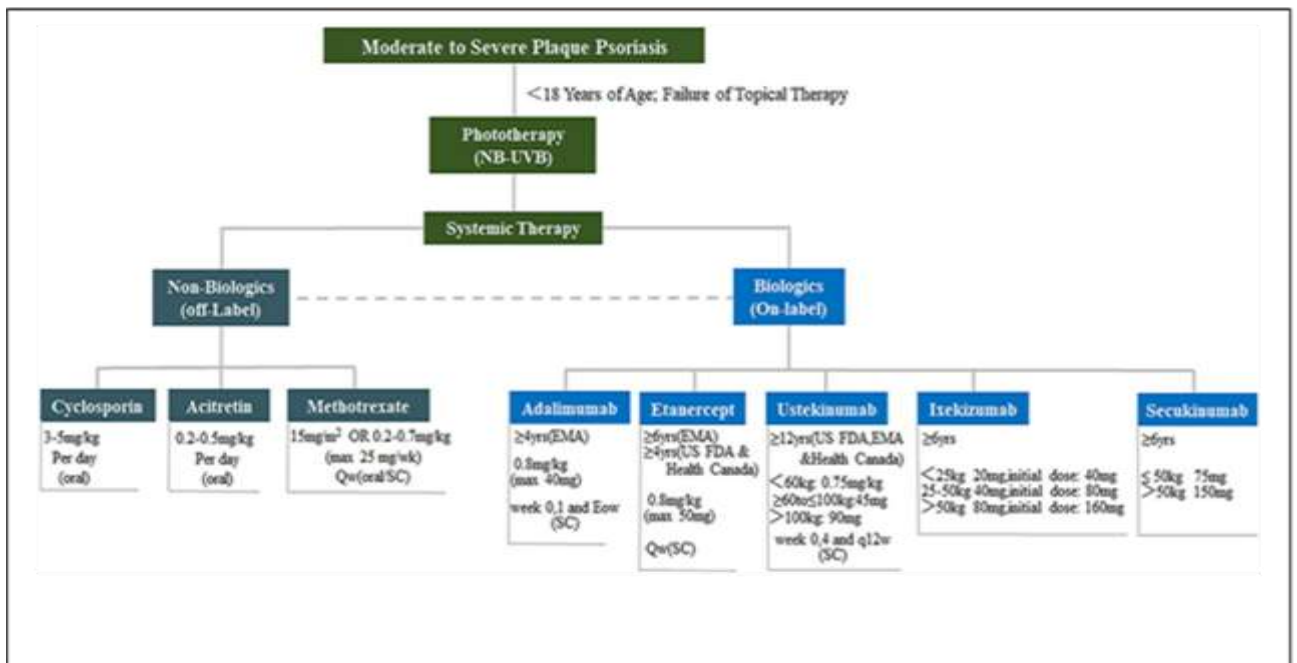


FIGURE 3 | Therapies for pediatric psoriasis. Treatment of moderate to severe pediatric psoriasis. Non-biologics include cyclosporin, acitretin and methotrexate. Biologics include adalimumab, etanercept, ustekinumab, and ixekizumab. NB-UVB, narrow bound ultra violet B light.

Conclusion

Psoriasis is a multisystem inflammatory disease that is underdiagnosed and undertreated despite

its prevalence and considerable effect on quality of life. Beyond skin and joint involvement, psoriasis is also associated with an array of important medical and psychiatric comorbidities that require timely therapy to improve long-term outcomes. Primary caregivers are well positioned to provide diagnosis and treatment of patients who seek initial evaluation at the primary care level. Patients with psoriasis for whom topical therapy fails can be referred to a dermatologist for further evaluation.

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