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## CLINICAL FEATURES AND MODERN METHODS OF TREATMENT OF PSORIASIS IN CHILDREN

**Introduction:** Psoriasis is a chronic, immune-mediated inflammatory skin disease characterized by hyperproliferation and abnormal differentiation of keratinocytes. Although more commonly diagnosed in adults, pediatric psoriasis represents a significant subset of cases, affecting approximately 0.5%–2% of children worldwide. Early onset of psoriasis can have substantial psychosocial and medical implications, underscoring the importance of prompt diagnosis and appropriate management [1,2].

**Keywords:** Psoriasis, children, clinical forms, clinical features, local therapy, systemic treatment, topical treatment

### Clinical Features

1. Age of Onset - Pediatric psoriasis can manifest at any age, including infancy.

Two peak onset periods have been described: early childhood (under 7 years old) and adolescence.

2. Morphological Variants - Plaque Psoriasis (Psoriasis Vulgaris): The most common form, presenting as well-demarcated erythematous plaques with silvery scales. In children, lesions may be smaller, thinner, and less scaly compared to adults.

Guttate Psoriasis: Characterized by multiple small, drop-like lesions often triggered by streptococcal infections. More commonly seen in children and adolescents than in adults.

Inverse (Flexural) Psoriasis: Involves intertriginous areas (e.g., axillae, groin, and inframammary areas). Lesions are typically shiny, with minimal scaling due to moisture in skin folds.

Erythrodermic Psoriasis: A rare but severe form involving generalized erythema. It can lead to systemic complications, including thermoregulatory dysfunction and electrolyte imbalance.

Pustular Psoriasis: Also rare in children but can be severe. Characterized by sterile pustules on an erythematous base. Generalized pustular psoriasis (von Zumbusch type) requires urgent treatment.

Distribution and Clinical Presentation - Commonly affects the scalp, face, and flexural areas in young children. Nail changes (pitting, onycholysis, discoloration) may occur and can be an early sign.

Comorbidities. Children with psoriasis have an increased risk of comorbid conditions, including obesity, metabolic syndrome, and potentially psoriatic arthritis (though less common in younger children).

Psychosocial impact, including anxiety, depression, and lowered self-esteem, is notable.

**Triggers** - Infections (especially streptococcal infections) often trigger guttate psoriasis. Trauma (Koebner phenomenon), stress, and certain medications can exacerbate psoriasis in predisposed children.

**Pathophysiology** - Psoriasis pathogenesis involves a complex interplay of genetic susceptibility (strong associations with HLA-Cw6 and other loci) and immunological factors. T helper (Th) cells—especially Th1, Th17, and Th22 subsets—drive cytokine-mediated keratinocyte hyperproliferation [4]. The result is a cycle of immune activation and inflammation that leads to the characteristic psoriatic plaques.

### Diagnostic Considerations

Diagnosis in children is primarily clinical, supported by:

Family history of psoriasis.

Typical lesion morphology (though scaled-down in severity).

Nail changes.

History of preceding infection (e.g., streptococcal pharyngitis in guttate psoriasis).

A skin biopsy is occasionally necessary if the clinical appearance is atypical or if there is a concern for other dermatoses (e.g., eczema, tinea corporis).

### **Modern Methods of Treatment**

Management of pediatric psoriasis should be individualized, taking into account the extent and severity of disease, age, comorbidities, and the psychosocial impact. Treatment goals include reduction of lesion burden, prevention of flares, and improvement in quality of life.

### **Topical Therapies**

#### 1. Topical Corticosteroids

First-line for mild to moderate pediatric psoriasis.

Potency should be carefully selected based on the anatomical site and age to minimize adverse effects such as skin atrophy, striae, and adrenal suppression with long-term use.

#### 2. Vitamin D Analogues (e.g., Calcipotriol, Calcitriol)

Commonly used in conjunction with topical corticosteroids.

Advantages include good efficacy and a favorable safety profile.

#### 3. Topical Calcineurin Inhibitors (e.g., Tacrolimus, Pimecrolimus)

Useful for sensitive areas (face, intertriginous regions) where potent steroids are contraindicated.

Typically safe, but long-term use should be monitored.

#### 4. Coal Tar Preparations

Used less frequently in children due to odor and cosmetic acceptability issues.

Often reserved for resistant plaques or used in combination with other modalities.

### **Phototherapy**

1. Narrowband UVB (NB-UVB) - Effective for moderate to severe cases or those unresponsive to topical treatments. May be associated with logistical challenges (clinic visits 2–3 times a week) and concerns about cumulative UV exposure.

2. Broadband UVB or UVA (plus psoralen, PUVA) - Less commonly used in children due to the potential for side effects (e.g., nausea with oral psoralen, risk of photoaging, long-term skin cancer risk).

3. Excimer Laser (308 nm) - Useful for localized lesions, as it delivers targeted phototherapy with reduced exposure of uninvolved skin.

### **Systemic Therapies**

Systemic treatment is considered when psoriasis is extensive, significantly affecting the child's quality of life, or associated with psoriatic arthritis or severe comorbidities.

#### 1. Methotrexate

Common first-line systemic agent in pediatric psoriasis.

Dosed once weekly; requires monitoring of liver function and blood counts.

Generally well-tolerated at low doses.

#### 2. Cyclosporine

Rapid onset of action, useful in severe or acute flares (e.g., erythrodermic, pustular).

Side effects include nephrotoxicity and hypertension, requiring close monitoring.

#### 3. Oral Retinoids (e.g., Acitretin)

Useful especially in pustular or erythrodermic psoriasis.

Main limitations include mucocutaneous side effects, potential teratogenicity (in adolescent females), and need for monitoring of lipid profiles and liver function.

### Biologic Therapies

Biologics have revolutionized the management of moderate to severe psoriasis. Their use in children has expanded based on accumulating safety and efficacy data.

#### 1. Tumor Necrosis Factor (TNF) Inhibitors

Etanercept: Approved for use in children with chronic severe plaque psoriasis.

Adalimumab: Also approved for pediatric plaque psoriasis.

Infliximab: Used off-label, generally for severe, refractory cases.

#### 2. Interleukin Inhibitors

Ustekinumab (IL-12/23 inhibitor): Approved for children ( $\geq 12$  years) with moderate to severe psoriasis.

Secukinumab (IL-17A inhibitor) and Ixekizumab (IL-17A inhibitor): Approved for pediatric use in some regions for moderate to severe plaque psoriasis.

IL-23 inhibitors (e.g., Guselkumab, Tildrakizumab): Data on pediatric populations are emerging, with some regulatory approvals for adolescents.

### Advantages of Biologics

High efficacy rates (PASI 75–90 or above).

Good long-term safety profiles observed in clinical trials and registries.

Particularly beneficial for children with significant comorbidities or psoriatic arthritis.

#### Drawbacks

High cost and insurance constraints.

Long-term immunogenicity and infection risk require ongoing vigilance.

#### Adjunctive and Supportive Measures

##### 1. Moisturizers and Emollients

Helpful in reducing scaling and itching.

Often used as adjunctive therapy to maintain skin hydration.

##### 2. Psychosocial Support

Essential due to the high risk of emotional stress, bullying, and reduced quality of life.

Counseling, support groups, and educational resources can improve coping strategies and adherence.

##### 3. Lifestyle Modifications

Weight management and physical activity may reduce systemic inflammation.

Avoidance of known triggers (stress reduction, infection control).

**Conclusion.** Pediatric psoriasis is a multifactorial disorder with profound physical and psychosocial implications. Modern therapy emphasizes a stepwise approach, starting from topical agents to phototherapy and systemic/biologic therapies, guided by disease severity and individual patient factors. Early intervention, comprehensive care, and long-term follow-up are key to optimizing outcomes and minimizing complications. As research into pediatric-specific formulations, dosing, and safety data continues to expand, treatment strategies are becoming both more effective and better tolerated, offering renewed hope for children living with psoriasis.

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