Chronic Plaque Psoriasis

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Chronic plaque psoriasis, the most common form of psoriasis, is a papulosquamous disease defined by erythematous plaques with a silvery scale. The diagnosis usually is clinical, but occasionally a biopsy is necessary. Psoriasis affects 0.6 to 4.8 percent of the U.S. population, and about 30 percent of affected patients have a first-degree relative with the disease. Psoriasis is a T-cell–mediated autoimmune disease, but certain medications and infections are well-known risk factors. Management of psoriasis includes education about chronicity, realistic expectations, and use of medication. Steroids and vitamin D derivatives (e.g., calcipotriene) are the mainstays of topical therapy. Topical steroids and calcipotriene together may work better than either agent alone. Patients with psoriasis involving more than 20 percent of their skin or those not responding to topical therapy are candidates for light therapy; traditional systemic therapy; or systemic treatment with immunomodulatory drugs such as alefacept, efalizumab, and etanercept. (Am Fam Physician 2006;73:636-44, 646. Copyright © 2006 American Academy of Family Physicians.)

Patient information: A handout on psoriasis, written by the authors of this article, is provided on page 646.
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psoriasis from other conditions with similar appearances such as lichen simplex chronicus, nummular eczema, seborrheic dermatitis, and tinea corporis.

PLAQUES

Chronic plaque psoriasis typically is symmetric and bilateral (Figure 1). Lesions begin as papules and eventually coalesce to form plaques. Plaques are well demarcated and covered by a silvery scale (Figure 2). Plaques exhibit the Auspitz sign (bleeding after the removal of scale) and the Koebner phenomenon (lesions induced by trauma). Most patients (84 percent) with psoriasis report itching; the word psoriasis is derived from the Greek word for itching, “psora.”

DISTRIBUTION

The extensor surfaces (elbows and knees) commonly are involved (Figure 3), as well as the lower back, scalp (Figure 4), and nails. Nail changes include onycholysis (separation of the nail from its bed; Figure 5), pitting (Figure 6), oil spots (yellow or brown spots caused by cellular debris under the nail), and nail dystrophy. Most patients eventually develop nail involvement, although nail findings precede skin findings in about 4 percent of patients. Older patients and those with longer duration of disease, extensive skin lesions, or joint involvement have more nail involvement.

Inverse psoriasis, or flexural psoriasis

<table>
<thead>
<tr>
<th>Clinical recommendation</th>
<th>Evidence rating</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>The diagnosis of psoriasis usually is based on the clinical appearance of the skin lesions.</td>
<td>C</td>
<td>35</td>
</tr>
<tr>
<td>Topical steroids and calcipotriene (Dovonex) are the mainstays of topical therapy and, when used together, they may work better than either agent alone.</td>
<td>A</td>
<td>17, 18, 29, 30</td>
</tr>
<tr>
<td>Patients who have psoriasis involving more than 20 percent of their skin are candidates for light therapy or systemic therapy, and usually these patients are managed in conjunction with a dermatologist.</td>
<td>C</td>
<td>30, 35</td>
</tr>
</tbody>
</table>

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, see page 573 or http://www.aafp.org/afpsort.xml.
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(Figure 7), affects intertriginous areas such as the gluteal fold, axillae, and glans of the uncircumcised penis. Scale may not appear in these areas.

COMPLICATIONS

Chronic plaque psoriasis does not affect longevity. The condition may, however, be complicated by several comorbidities including malignancy, arthritis, and emotional distress from the cosmetic effects of the disease. Depression, anxiety, sexual dysfunction, poor self-esteem, and suicidal thoughts may coexist with psoriasis, even in patients with less severe disease.\textsuperscript{13} Cohort studies\textsuperscript{14} have shown that an increased risk of nonmelanoma skin cancers
and lymphoma is associated with psoriasis. This risk is higher in patients with more severe disease, but it is not clear whether disease severity or treatment accounts for the increased risk.

Psoriatic arthritis is an inflammatory, seronegative arthritis with a variable course. The arthritis typically is asymmetric and involves the fingers and toes (Figure 8). Estimates of the prevalence of psoriatic arthritis vary widely, but the authors of one study at a referral center found that one third of patients with psoriasis had arthritis and that, in two thirds of those with arthritis, skin lesions preceded arthritis.

**Treatment**

**GENERAL APPROACH**

Patients and physicians should understand that psoriasis is a chronic disease without a cure, and that it is important to have realistic expectations of treatment. Treatment should focus on improvement, not disappearance, of lesions. Complete clearing of lesions usually is not possible in patients who use only topical therapy, and overuse of topical therapies results in more side effects.

**NONDRUG THERAPIES**

A variety of nondrug therapies for chronic plaque psoriasis have been suggested, including acupuncture, psychotherapy, lifestyle modifications (e.g., smoking cessation), and dietary supplementation (e.g., vitamin D, fish oil). However, there is insufficient evidence regarding the effectiveness of these treatments.

**TOPICAL THERAPIES**

Topical therapies used to manage psoriasis include steroids, vitamin D derivatives, retinoids, immunosuppressants, anthralin (Anthra-Derm), coal tar ointment (Zetar), and several other agents (Table 1).

Topical Steroids. Topical steroids have been the mainstays of treatment for many years. Multiple randomized controlled trials (RCTs) have found that potent (e.g., fluocinonide [Lidex], mometasone [Elocon] ointment) and very potent (e.g., clobetasol [Temovate], halobetasol propionate [Ultra-}

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**Although a variety of nondrug therapies such as acupuncture, psychotherapy, and dietary supplements have been suggested for the management of psoriasis, there is insufficient evidence to support their use.**

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Figure 8. Severe psoriatic arthritis affecting the fingers.
**TABLE 1: Topical Therapies for Chronic Plaque Psoriasis**

<table>
<thead>
<tr>
<th>Drug class/drug(s)</th>
<th>Mechanism of action</th>
<th>Dosage</th>
<th>Common side effects</th>
<th>Cost (generic)*</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topical steroids</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Various potent or very potent topical steroids (e.g., mometasone [Elocon], clobetasol [Temovate])</td>
<td>Controls inflammation</td>
<td>Mometasone: 0.1% cream, ointment; applied once a day, Clobetasol: 0.05% cream, ointment, gel, solution; applied twice a day</td>
<td>Hypopigmentation, striae, skin atrophy, tachyphylaxis</td>
<td>Mometasone: Cream, ointment: 45 g, $54 ($45 to $49), Lotion: 60 mL, $61, Clobetasol: Cream, ointment: 45 g, $80 ($47 to $50), Gel: 60 g, $100 ($72 to $74), Solution: 25 mL, $36 ($27 to $28)</td>
<td>Side effects increase with longer duration of use and occlusive dressings.</td>
</tr>
<tr>
<td><strong>Vitamin D derivatives</strong></td>
<td>Normalizes keratinocyte proliferation and differentiation</td>
<td>0.005% cream, ointment, solution; applied twice a day</td>
<td>Skin irritation, pruritus, burning, hypercalcemia</td>
<td>Cream: 60-g tube, $132; 120-g tube, $241, Solution: 60-mL bottle, $116, Ointment: 60-g tube, $132; 120-g tube, $241</td>
<td>Limit dosage to 100 g per week to avoid hypercalcemia.</td>
</tr>
<tr>
<td><strong>Topical retinoids</strong></td>
<td>Normalizes keratinocyte proliferation and differentiation</td>
<td>0.05%, 0.1% cream, gel; applied at bedtime</td>
<td>Skin irritation, pruritus, burning/stinging, erythema, desquamation, teratogenicity</td>
<td>Cream, 0.05%: 30 g, $100; 60 g, $200; 0.1%: 30 g, $106; 60 g, $213, Gel, 0.05%: 100 g, $334; 0.1%: 100 g, $354</td>
<td>Obtain negative pregnancy test within two weeks of starting treatment.</td>
</tr>
<tr>
<td><strong>Topical immunosuppressants</strong></td>
<td>Inhibits T-lymphocyte cell activation</td>
<td>0.1%, 0.3% ointment; applied once or twice a day</td>
<td>Burning/stinging, pruritus, influenza-like symptoms, erythema, acne, folliculitis, HSV infection</td>
<td>0.1%: 30 g, $68, 0.1%: 60 g, $136, 0.1%: 100 g, $209</td>
<td>Studies cited used 0.3% ointment every day and 0.1% ointment twice a day.</td>
</tr>
<tr>
<td><strong>Anthralin (Anthra-Derm)</strong></td>
<td>Antiproliferative effect on epidermal keratinocytes</td>
<td>0.1%, 0.25%, 0.5%, 1% cream, ointment; applied once or twice a day</td>
<td>Skin irritation, erythema, staining (skin and clothing), odor</td>
<td>Anthra-Derm cream, 1%: 50 g, $88 ($59)</td>
<td></td>
</tr>
<tr>
<td><strong>Coal tar</strong></td>
<td>Keratolytic and probably anti-inflammatory and antiproliferative effects</td>
<td>Coal tar solution 10% = 2% coal tar; applied at bedtime</td>
<td>Skin irritation, folliculitis, odor, staining of clothing</td>
<td>3.8 oz, $9 to $13</td>
<td></td>
</tr>
</tbody>
</table>

*HSV = herpes simplex virus.*

**NOTE:** Drugs are listed from most to least clinically important.

— Estimated cost to the pharmacist based on average wholesale prices (rounded to the nearest dollar) in Red Book. Montvale, N.J.: Medical Economics Data, 2005. Cost to the patient will be higher, depending on prescription filling fee.

† Not approved by the U.S. Food and Drug Administration for the management of psoriasis.

Information from references 17 through 27.
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**Topical Retinoids.** A topical retinoid, tazarotene (Tazorac), also improves chronic plaque psoriasis. The authors of one RCT found tazarotene to be as effective as topical steroids, with a treatment success rate at 12 weeks for knee and elbow lesions of 65 percent with tazarotene 0.1% versus 66 percent with fluocinonide. In a second RCT, tazarotene 0.1% plus a steroid was more effective and better tolerated than tazarotene alone. The overall response to treatment at 12 weeks was 80 percent in the tazarotene/placebo group and 95 percent in the tazarotene/steroid group ($P < .05$; number needed to treat [NNT] = 7).

No studies have directly compared tazarotene with calcipotriene, but the authors of a recent systematic review found a higher percentage of treatment-related adverse effects in patients using tazarotene. Tazarotene causes perilesional irritation and is teratogenic.

**Topical Immunosuppressants.** The topical immunosuppressants tacrolimus (Prograf) and pimecrolimus (Elidel) are not approved by the U.S. Food and Drug Administration (FDA) for the treatment of psoriasis but are used by some physicians for this purpose. One small RCT did not find a difference between tacrolimus and placebo. Recently, two industry-sponsored RCTs found that tacrolimus improved intertriginous and facial psoriasis compared with placebo (NNT = 3), and that pimecrolimus improved intertriginous psoriasis compared with placebo (NNT = 3).

Side effects of tacrolimus and pimecrolimus are mainly burning and itching, and both medications are expensive. Skin cancer and lymphoma have been reported after using these drugs, but causative associations are uncertain.

**Anthralin/Coal Tar.** Anthralin and coal tar were once popular treatments for psoriasis when used in combination with ultraviolet B (UVB) light therapy. Both have fallen out of favor because of their poorly tolerated side effects, and neither is more effective than calcipotriene.

**Miscellaneous.** Evidence is insufficient to support the use of aloe vera or capsaicin as treatment for psoriasis. Emollients and keratolytics often are used in conjunction with other topical therapies, but there is scant evidence to support their use alone. Good skin hygiene is important for treating most dermatologic conditions, so keeping skin hydrated with emollients and using keratolytics on flaky skin is recommended.

**LIGHT THERAPY**

Light therapy includes UVB phototherapy and ultraviolet A (UVA) photochemotherapy, usually administered in specialty centers. UVA photochemotherapy is the combination of ingested psoralen (a photosensitizer) followed by exposure to UVA (psoralen plus UVA [PUVA] therapy). RCTs have shown that both are beneficial, but there is an increased rate of nonmelanoma skin cancer following PUVA therapy. It is not clear whether tanning should be recommended as a treatment for psoriasis. Sunbathing helps clear psoriasis plaques in most patients, but it also increases the risk of skin cancers.

**SYSTEMIC TREATMENTS**

Systemic therapy for psoriasis includes methotrexate; cyclosporine (Sandimmune); oral retinoids; and, recently, the biologics. According to a recent review, there is strong RCT evidence that cyclosporine is effective and that oral retinoids are moderately effective. There was, however, a lack of RCTs to support the use of methotrexate. Methotrexate, cyclosporine, and oral retinoids all have serious side effects including myelosuppression, hepatotoxicity, renal impairment, and teratogenicity.

The biologics alefacept (Amevive), efalizumab (Raptiva), and etanercept (Enbrel) all have FDA approval for the management of psoriasis, and infliximab (Remicade) may gain approval soon. RCTs, including phases II and III studies, support the effectiveness of these drugs compared with placebo, but they have not yet been compared to each other or other therapies. Table summarizes the side effects, cost, and monitoring required for the biologics.

**Approach to the Patient**

Evidence-based guidelines on the treatment of patients with chronic plaque psoriasis were...
published in 2004 by the Finnish Dermatological Society. Recommendations for the management of psoriasis in primary care, based on these guidelines, the evidence cited above, and considering common practice among American dermatologists, are shown in Figure 9.15

For the initial treatment of psoriasis on limited areas of skin, the most effective treatment is a combination of potent topical steroids and calcipotriene. This recommendation, however, is based on limited evidence.18,29,30 An alternative would be to start with a potent topical steroid, calcipotriene, or a topical retinoid alone. Calcipotriene and topical retinoids can be used long-term, but topical steroids must be used intermittently (i.e., for one to four weeks at a time) because of their side effects.35

If plaques are small and not bothersome, some patients may choose observation. For patients in whom psoriasis is limited to the scalp, the first-line therapy is usually daily antidandruff shampoo. Steroid solutions, foams, or shampoos may be used intermittently for exacerbations. Mild- to moderate-potency topical steroids or topical immunosuppressants should be used for intertriginous plaques.

Patients who do not respond to the above treatments, or who have lesions that occupy more than 20 percent of their body surface area, are candidates for light therapy, traditional systemic therapy, or the immunomodulating agents. Management of psoriasis usually is undertaken by or in conjunction with a dermatologist.35

| TABLE 2 | Biologic Therapies for Chronic Plaque Psoriasis |
| --- | --- | --- | --- | --- | --- |
| **Drug** | **Mechanism of action** | **Dosage** | **Common side effects** | **Monitoring** | **Cost*** |
| Alefacept (Amevive) | Interferes with the function of antigen-presenting cells | 7.5 mg IV per week for 12 weeks or 15 mg IM per week for 12 weeks; repeat cycle may be given 12 weeks after first cycle complete | Lymphopenia, injection-site reactions, influenza-like symptoms, pruritus | Check CD4+ cell count at baseline and weekly thereafter. | $8,400 to $11,940 for a 12-week cycle |
| Efalizumab (Raptiva) | Inhibits T-cell/endothelial cell adhesion | Initial dose: 0.7 mg per kg SC 1 mg per kg SC per week continuously thereafter Maximum: 200 mg per dose | Influenza-like symptoms, URI, acne, psoriasis exacerbation; rare but serious side effect is thrombocytopenia | Monitor platelet counts every month initially, then every three months. | $18,720 for one year of continuous treatment |
| Etanercept (Enbrel) | Blocks the proinflammatory cytokine TNF-α | 50 mg SC twice per week for three months, then decrease to maintenance dosage of 50 mg SC per week | Injection-site reactions, URI symptoms, abdominal pain; potential risk of reactivating TB | Check PPD before treatment. | $20,700 (60 doses) for one year of continuous treatment |
| Infliximab (Remicade) | Blocks the proinflammatory cytokine TNF-α | 3 to 10 mg per kg IV infusions (over two hours) at weeks zero, 2, 6, and 14 | Infusion reactions, URI, pruritus, headache, sore throat; potential risk of reactivating TB | Check PPD before treatment. | $22,112 per year, based on eight treatments |

IV = intravenous; IM = intramuscular; SC = subcutaneous; URI = upper respiratory infection; TNF = tumor necrosis factor; TB = tuberculosis; PPD = purified protein derivative.

*—Estimated cost to the pharmacist based on average wholesale prices (rounded to the nearest dollar) in Red Book. Montvale, N.J.: Medical Economics Data, 2005. Cost to the patient will be higher, depending on prescription filling fee.

Information from references 31 through 34.
Management of Chronic Plaque Psoriasis

Patient presents with lesion suspicious for psoriasis. Obvious psoriasis?

No
Yes

Biopsy. Is psoriasis present?

No
Yes

Treat accordingly. 
Plaques involve < 20% of the skin?

No
Yes

Consult with a dermatologist. 
Trunk/extensor surface involvement?

No
Yes

Scalp involvement?

No
Yes

Are skinfolds involved?

No
Yes

Daily antidermuff shampoo and intermittent steroid solution/foam (i.e., clobetasol [Temovate] 0.05% solution, foam, or shampoo)

Are plaques localized to small area and not bothersome to patient?

No
Yes

1. Trial of high- or very-high–potency topical steroid with calcipotriene (one in the morning, one in the evening; monitor for steroid side effects)*

2. Trial of high- or very-high–potency topical steroid alone, or calcipotriene alone or topical retinoid alone (limit topical steroid use to one to four weeks at a time; monitor for side effects)

Use only mild- or moderate-potency steroids for a short time, or may try a topical immunosuppressant.

Patient may choose no treatment.

Consider consultation with a dermatologist.

May discontinue treatment and maintain good skin hygiene (use daily emollients and keratolytics as necessary).

Improved?

No
Yes

1. Trial of high- or very-high–potency topical steroid with calcipotriene (one in the morning; one in the evening; monitor for steroid side effects)*

NOTE: Combination products containing a steroid and calcipotriene (applied once or twice daily) are not yet available in the United States.

*—Preferred initial treatment by Finnish guidelines.

Figure 9. Algorithm for the management of chronic plaque psoriasis, based on recent guidelines, current evidence, and common practice among American dermatologists.
REFERENCES