

# Psoriasis: first-line treatments

In this the first of two articles, **Christine Clark** reviews the features and treatment of mild to moderate psoriasis

**P**soriasis is a chronic inflammatory skin disease that affects 2 to 3 per cent of the UK population. Although it can start at any age, the disease usually starts between the second and third decades of life or in the sixth decade. The cause of psoriasis is not known but inheritance appears to play a part — approximately one third of patients have a family history and a number of genetic markers exist.

## Types of psoriasis

There are several types of psoriasis. The most common form of psoriasis is chronic plaque psoriasis (also known as psoriasis vulgaris or chronic stable plaque psoriasis), which accounts for approximately 90 per cent of cases.

**Chronic plaque psoriasis** Typically, chronic plaque psoriasis presents as well-defined, thickened, red plaques (a plaque is a raised patch on the skin more than 2cm across) covered with silvery scales that are liberally shed (see Figure 1). On black skin the plaques appear dark red and the scale appears greyish. If the scales are scratched or removed, characteristic pinpoint bleeding (Auspitz's sign) is seen. Chronic plaque psoriasis can occur almost anywhere on the body but the most commonly affected areas are the scalp, the extensor (outside) surfaces of the limbs (typically shins and elbows) and the lower back. The plaques tend to be more or less symmetrical and they can crack and bleed.

The major biological abnormalities in psoriasis include:

- Hyperproliferation of the epidermis, which leads to thickening of the epidermis and scaling — affected skin can be up to 16 times thicker than normal skin (hyperproliferation involves more cells entering the growth phase rather than an acceleration of growth)
- Abnormal differentiation of keratinocytes (cells that make up most of the epidermis) — the cells do not mature in the same way as normal keratinocytes (when the skin in psoriatic plaques is examined microscopically, the granular layer is missing, the stratum corneum is thickened and many of the cells in the stratum corneum still contain nuclei)
- Infiltration of the dermis and epidermis with activated T-lymphocytes and neutrophils
- Stimulation of the cutaneous vasculature, leading to new blood vessel formation in the psoriatic plaques

Cell-mediated immune mechanisms appear to drive these processes and a growing understanding of this area has led to studies of



Figure 1: Plaque psoriasis

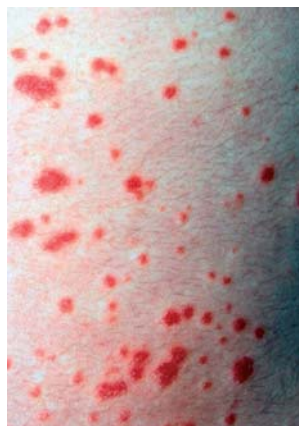
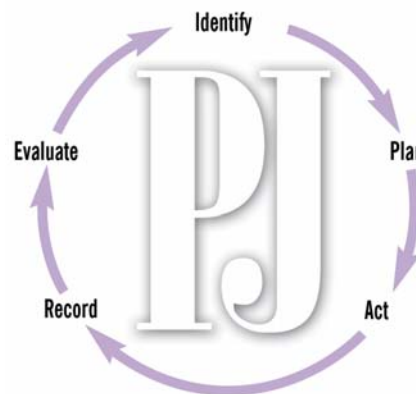


Figure 2: Guttate psoriasis



## Identify knowledge gaps

1. Name two types of psoriasis.
2. How is disease severity classified?
3. How should calcipotriol be applied?

Before reading on, think about how this article may help you to do your job better. The Royal Pharmaceutical Society's areas of competence for pharmacists are listed in "Plan and record", (available at: [www.rpsgb.org/education](http://www.rpsgb.org/education)). This article relates to "common disease states" (see appendix 4 of "Plan and record").

a large number of biological agents as treatments.

Chronic plaque psoriasis can also affect the flexures and intertriginous areas (eg, axillae, groin, perineum and under the breasts) where it appears as red, shiny, moist skin with no scaling. In some countries flexural psoriasis is described as "inverse psoriasis". A significant proportion of patients find their psoriasis lesions itchy.

The clinical appearance of scalp psoriasis can vary from light scaling to grossly thickened scales stuck to the hair shafts. The scalp is affected in about 80 per cent of chronic plaque psoriasis sufferers. Scalp and flexural psoriasis present special problems for treatment — hair gets in the way and flexures are sensitive (thin skin), have mechanical problems (rubbing) and are prone to secondary infection.

**Guttate psoriasis** Guttate (drop-like) psoriasis is an acute form of psoriasis that usually affects children and young adults (see Figure 2). It presents as widespread small, scaly lesions (as if spattered from a brush) and commonly follows a streptococcal throat infection. In most patients guttate psoriasis clears within eight weeks with topical therapy.

**Pustular and erythrodermic psoriasis** Pustular psoriasis and erythrodermic psoriasis are less common. Localised pustular psoriasis is

characterised by yellow-brown pustules on the palms or soles of the feet. Generalised pustular psoriasis is a rare form of the disease in which clusters of pustules develop on already inflamed skin. The onset is often acute and the patient is seriously ill with fever and malaise. Hospital admission is required.

In erythrodermic psoriasis the skin becomes red and inflamed all over the body (see Figure 3). There is usually scaling. The skin feels hot but the patient complains of shivering and malaise. Erythrodermic psoriasis can be precipitated by the withdrawal of systemic or potent topical steroids.

**Nails** Fingernails and toenails are affected in about 50 per cent of cases of psoriasis. Nails show small pits (similar to those on a thimble), onycholysis (partial separation of the nail from the nail bed) and “oil spots” or “salmon patches” (characteristic discolouration due to areas of psoriasis under the nail). Some or all of the nails can be affected.

**Precipitating factors** Psoriasis is a relapsing and remitting condition. It can flare up at any time, imposing a heavy psychological burden. Although the exact mechanisms are not understood, a number of precipitating or exacerbating factors have been identified:

- Trauma — psoriasis can appear at sites of injury, such as scratches, surgical wounds and even tattoos
- Infection — guttate psoriasis is often triggered by pharyngitis caused by beta-haemolytic streptococci
- Hormonal events (eg, menstruation)
- Sunlight (although sunlight usually improves psoriasis, the condition can worsen on exposure in 10 per cent of cases)
- Drugs (eg, beta-blockers, angiotensin-converting enzyme inhibitors, antimalarial agents and lithium)
- Alcohol intake
- Cigarette smoking
- Profound psychological stress (eg, bereavement or divorce)

**Disease severity** Classifications of severity vary and clinicians use factors such as disease activity, response to treatment and impact of disease on the individual to evaluate this.

There is general agreement that disease affecting more than 15–20 per cent of the body surface area is severe. However, this approach does not take into account the impact of a small area of disease in a sensitive or visible area and most clinicians recognise that the extent of the disease has to be assessed along with the degree of social or psychological disability that the patient is experiencing.

### Management of psoriasis

Most patients with chronic plaque psoriasis have mild disease that can be managed in a primary care setting using topical treatments. The British Association of Dermatologists (BAD) and the Primary Care Dermatology Society guidelines for the initial management



**Figure 3: Erythrodermic psoriasis**



**Figure 4: Scalp psoriasis**

of psoriasis emphasise the use of topical treatments. Patients with moderate to severe disease can require second-line treatment, often involving phototherapy, photochemotherapy (PUVA) or systemic drug treatment under the supervision of a dermatologist (see the next CPD article in this series).

Although sufferers are rarely completely clear of diseased skin, there can be long periods when the disease is confined to a small patch on the leg or elbow. Sufferers are likely to experience phases of active disease (flare-ups or exacerbations) when the disease appears to break out and inflamed plaques can appear anywhere on the skin (as described above).

The treatment of some types of psoriasis may need special consideration. Panel 1 outlines typical regimens for scalp psoriasis.

**Emollients** All patients with psoriasis should be encouraged to use an emollient regularly. Emollients restore pliability to the skin and reduce the shedding of skin scales. They also reduce pruritus and help prevent painful cracking and bleeding. Patients should be encouraged to experiment with emollients until they find products that suit them, bearing in mind that different products may be needed for different areas of skin. An emollient bath additive may also be used.

**Vitamin D analogues** In recent years, vitamin D analogues (calcipotriol, tacalcitol and calcitriol) have become the mainstay of treatment for mild to moderate chronic plaque psoriasis. They can clear psoriasis in six to eight weeks.

Vitamin D analogues inhibit keratinocyte differentiation and proliferation and might have some anti-inflammatory activity. They have weaker effects on calcium metabolism than vitamin D itself. Unlike older treatments, such as tar and dithranol, they do not smell or stain. Nor do they carry the risk of the skin atrophy seen with topical steroids. It has been shown that vitamin D analogues may be as effective as use of a potent steroid, but with a longer duration of remission following discontinuation of treatment.<sup>2</sup> Skin irritation, resulting in transient increased redness, dryness and stinging or burning, can be a problem and, for this reason, calcipotriol should not be used on the face or flexures. Calcitriol is significantly less irritant and is suitable for use on the face and sensitive flexural areas.<sup>3</sup>

It is important to ensure that adequate quantities are used — 0.5g (a fingertip unit) of calcipotriol cream or ointment per 100cm<sup>2</sup> of skin (about the area of a medium-sized adult palm). It is worth emphasising that calcipotriol should be applied fairly thickly in contrast to topical corticosteroids. One study showed that when optimal amounts were applied, about two thirds of apparent “non-responders” derived significant benefits.<sup>4</sup> Another useful approach is to ensure that the patient is prescribed both cream and ointment formulations — the ointment for night

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## Panel 1: Treatment of scalp psoriasis

Scalp psoriasis often extends just beyond the scalp margin, leaving an inflamed, scaly border extending about one centimetre from the hairline (see Figure 4). On the scalp, thickened, scaly patches are separated by areas of normal skin. In addition, the scalp can be itchy and feel tight or sore. Just as psoriasis on other areas of the body varies in severity between individuals, so does the extent to which it affects the scalp. Some people appear to have a bad attack of dandruff, shedding large numbers of silvery-white skin flakes but others can have a thick, unsightly layer of scale. Psoriasis does not normally affect hair growth although some patients with scalp psoriasis experience temporary thinning of the hair. Usually this corrects itself once the disease is controlled.

Regular use of a tar-containing shampoo may be sufficient to control mild scalp psoriasis. The treatment of severe scalp psoriasis is likely to involve two stages. First, treatment is required to soften and remove the scale. This allows active treatments, used in the second stage, to have maximum potential benefit in controlling the disease process.

Scale can be softened effectively using olive oil, almond oil or compound coconut ointment. Products containing keratolytic agents such as salicylic acid or sulphur can help lift scales. Thorough but gentle application and sufficient contact time are essential for success. Olive oil can be massaged gently into the scalp, and left for at least one hour to penetrate the dried scale. Ointments should be applied quite thickly, parting the hair in several places so as to cover the whole scalp. Again, it should be left in place for at least an hour. Some specialists advise leaving these softening treatments on overnight. A plastic shower cap can be worn over the hair and pillows need to be protected with a towel. Before washing out the oil, some of the loosened scales can be gently combed or picked out. Disinfectant shampoos (eg, Ceanel) may be used — or any shampoo that suits patient. Most people find scalp treatment easier if someone else can help with the application and the combing-out processes. Working the shampoo into the hair near the scalp before adding water can remove the oil more effectively. It may take some time for the scalp and hair to return to a satisfactory condition. The softening and shampooing routine may need to be repeated daily for a few days.

The second step, active treatment with vitamin D derivatives or steroid scalp applications, can then be performed. Again, careful, thorough application is needed, gently parting the hair and working across the whole scalp.

Perming, colouring and bleaching of the hair can all be done safely in people with psoriasis, subject to the usual precautions (eg, testing for skin sensitivity before use). If there is active disease, it is better to wait until it has subsided because the chemicals may exacerbate a flare-up of psoriasis if the skin is cracked or damaged.

time use and the cream for daytime use. Ointments are stickier and generally more effective but less cosmetically attractive to use.

In addition, a systematic review has shown that treatment with a vitamin D derivative is as effective as topical corticosteroids for psoriasis and superior to dithranol. The same review concluded that combined therapy using calcipotriol and a potent corticosteroid was more effective than calcipotriol alone.<sup>5</sup>

The weekly doses of the vitamin D analogues are limited to avoid the risk of hypercalcaemia (calcipotriol 100g, calcitriol 210g and tacalcitol 70g). If a patient has not responded to eight weeks' treatment that has been applied correctly, then it is likely that a topical steroid would be added. However, this combination could not be used indefinitely. Another approach is to alternate the vitamin D derivative with a topical steroid.

**Topical corticosteroids** Topical corticosteroids do not smell, stain or cause irritation and are often effective for bringing a flare-up under control. These advantages have to be balanced against the risks of local side effects such as skin atrophy, striae, telangiectasias and the risk of rebound and worsening of psoriasis after discontinuation. An additional problem is tachyphylaxis (the diminution of a

pharmacological response during the continued or repeated administration of an activating substance so requiring increasing amounts in order to achieve the same effect as treatment progresses).

Mild topical steroids are used for psoriasis affecting the face, flexures or genitalia while potent steroids are used for recalcitrant lesions on the trunk or limbs. One fingertip unit of a corticosteroid cream or ointment is sufficient to treat an area equivalent to the flat of two adult hands (the area you get if you put your hand down on a piece of paper and draw round it — ie, including fingers and thumb).

The use of steroids to treat psoriasis requires careful supervision and the BAD has formulated guidelines for their safe use (see Panel 2). Steroid phobia prevents some patients using topical corticosteroids effectively and this needs to be addressed with clear explanations. Another important aspect of accidental corticosteroid misuse is confusion between concentration and potency. People with psoriasis often receive several different topical corticosteroids and, on occasions, have assumed that lower concentrations equate to lower potencies — an analogy with artificial sweeteners is a useful way to explain the difference.

The moderate potency steroid, clobetasone butyrate 0.05 per cent may not be sold for the treatment of psoriasis.

**Tazarotene** Tazarotene is a topically active retinoid. It normalises keratinocyte differentiation, and has anti-proliferative and anti-inflammatory effects. Although tazarotene is moderately effective, its use is limited by skin irritation (erythema, pruritus and burning) and increased photosensitivity. Some dermatologists recommend that this vitamin A derivative should be used with a topical corticosteroid to minimise irritation. Because of the teratogenicity of systemic retinoids and the possibility of systemic absorption of tazarotene, the gel should not be given to

## Panel 2: BAD guidelines for the management of psoriasis with topical corticosteroids

- No topical steroid should be used regularly for more than four weeks without review
- Potent corticosteroids should not be used regularly for more than seven days
- No unsupervised repeat prescriptions should be made: patients should be reviewed every three months
- No more than 100g of a moderately potent or higher potency preparation should be applied per month
- Attempts should be made to rotate topical corticosteroids with alternative non-corticosteroid preparations
- Use of potent or very potent preparations should be under dermatological supervision
- The fingertip unit is a measure that helps patients to know how much ointment or cream to apply

women of child-bearing age unless adequate contraception is in use.

**Tar preparations** Coal tar has been used in the treatment of psoriasis for decades. Its mode of action is not fully understood and the active component (among the thousands in crude coal tar) is unknown. Coal tar is believed to be keratolytic, with some anti-inflammatory and antiproliferative effects. In addition to proprietary preparations, crude coal tar, 1–5 per cent in white or yellow soft paraffin or emulsifying ointment, has been used.

Crude coal tar stains clothing and smells unpleasant to many people. In addition, it is less effective than vitamin D derivatives. It has been combined with UVB phototherapy (as in the Goeckerman regimen). Crude coal tar contains a number of carcinogens and percutaneous absorption of mutagens is known to occur. Nevertheless, there is no epidemiological evidence that topical coal tar treatment increases the risk of cutaneous or internal cancer.

**Dithranol** Dithranol (anthralin) has also been used for the treatment of psoriasis for many years. It is a yellow powder that is profoundly irritant to skin, causing inflammation and blistering. It causes a purple-brown residual (temporary) staining of skin and also stains clothing and bathroom fittings permanently. Dithranol was traditionally incorporated into Lassar's paste (zinc and salicylic acid paste BP) so that it can be applied to the psoriasis plaques and kept away from uninvolved skin. The concentration used is gradually increased according to the patient's response. It is believed to exert a direct anti-proliferative effect on epidermal keratinocytes.

Dithranol has been used in two main ways. Traditional, inpatient treatment involves application (by a nurse). The paste is removed after 12 to 24 hours after which the patient has a tar bath and UVB irradiation (Ingram regimen). In recent years short-contact dithranol treatment ("SCDT") has been developed, which involves application of dithranol in concentrations of up to 8 per cent for between 15 and 30 minutes, with or without UVB irradiation. For some patients, SCDT is suitable for home use.

An alternative formulation of dithranol can offer some advantages. Micanol is temperature sensitive and releases dithranol at skin temperature. It must be washed off with cold water (no soap) to avoid further release of dithranol.

A response to treatment can be expected within 20 days. Great care must be taken to avoid contact with normal skin and facial skin. Dithranol treatment is impractical if there are multiple small plaques and it is not suitable for the treatment of flexural psoriasis because of its irritant nature.

### Pharmaceutical care

In discussion with patients and carers it is important to emphasise the following:

- Psoriasis cannot be cured, but it can be controlled

- Psoriasis is not infectious
- Psoriasis does not develop into skin cancer
- Psoriasis cannot be spread to new areas of skin through the application of topical treatments

As can be seen from treatment guidelines, a patient can have several concurrent topical treatments. It is important to ensure that the patient understands which product to apply to which site, the quantity to be applied and the method of application — and what kind of response to expect and when. Time spent on these points can make a major contribution to the effectiveness of the prescribed treatment.

It is important to provide up-to-date information about available treatments, their effectiveness, side effects and practical considerations so that patients can decide on what is most suitable for them. Moreover, some patients who have had tar or dithranol treatments in the past have given up on treatment and may not have had the opportunity to try newer products such as the vitamin D analogues. Sources of information include patient support groups (see below), pharmaceutical companies and local dermatology specialist centres.

Surveys have shown that patients are often disappointed with the results of prescribed treatment. Inadequate information about how and where to apply topical products almost certainly contributes to this, as well as inadequate information about alternative treatment options. Pharmacists who have regular contact with patients, can play an important role in helping to ensure that current guidelines are followed, responses to treatment are monitored and treatment is modified if necessary.

### Action: practice points

Reading is only one way to undertake CPD and the Society will expect to see various approaches in a pharmacist's CPD portfolio.

1. Make sure you can answer the following questions for each psoriasis treatment you dispense:
  - How much should be applied and how?
  - What kind of response can the patient expect and when?
2. Do you know a patient with scalp psoriasis? Ask him or her what products they find most pleasant to use.
3. Make a list of the different types of psoriasis you have seen.

### Evaluate

For your work to be presented as CPD, you need to evaluate your reading and any other activities. Answer the following questions:

What have you learnt?  
How has it added value to your practice? (Have you applied this learning or had any feedback?)  
What will you do now and how will this be achieved?

### References

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2. Ortonne J-P, Humbert P, Nicolas JF, Tsankov N, Tonev SD, Janin A et al. Intra-individual comparison of cutaneous safety and efficacy of calcitriol 3mg g<sup>-1</sup> ointment and calcipotriol 50mg g<sup>-1</sup> ointment on chronic plaque psoriasis localized in facial, hairline, retroauricular or flexural areas. *British Journal of Dermatology* 2003;148:1–8.
3. Osborne JE, Hutchinson PE. The importance of accurate dosage of topical agents: a method for estimating dosage and its application to apparent calcipotriol treatment failures in psoriasis. *British Journal of Dermatology* 2000;143(Suppl 57):63–4.
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5. Guidelines for the management of psoriasis. *Journal of Dermatological Treatment* 1997;8:27–55.

### Resources

- The Psoriasis Association (Tel 0845 676 0076) [www.psoriasis-association.org.uk](http://www.psoriasis-association.org.uk)
- British Association of Dermatologists Clinical guidelines on psoriasis [www.bad.org.uk/doctors/guidelines](http://www.bad.org.uk/doctors/guidelines)
- British Association of Dermatologists & Primary Care Dermatology Society. Recommendations for the initial management of psoriasis [www.pcds.org.uk](http://www.pcds.org.uk)