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[Intervention Review]

Topical treatments for chronic plaque psoriasis

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ABSTRACT

Background

Chronic plaque psoriasis is the most common type of psoriasis, and it is characterised by redness, thickness, and scaling. First-line management of chronic plaque psoriasis is with topical treatments, including vitamin D analogues, topical corticosteroids, tar-based preparations, dithranol, salicylic acid, and topical retinoids.

Objectives

To compare the effectiveness, tolerability, and safety of topical treatments for chronic plaque psoriasis, relative to placebo, and to similarly compare vitamin D analogues (used alone or in combination) with other topical treatments.

Search methods

We updated our searches of the following databases to February 2011: the Cochrane Skin Group Specialised Register, CENTRAL in *The Cochrane Library* (2011, Issue 2), MEDLINE (from 1948), EMBASE (from 1980), Science Citation Index (from 2008), Conference Proceedings Citation Index - Science (from 2008), BIOSIS (from 1993), Dissertation Abstracts via DialogClassic (all publication years), and Inside Conferences (all publication years).

We identified ongoing and unpublished studies from the UK Clinical Research Network Study Portfolio and the *meta*Register of Controlled Trials. We checked the bibliographies of published studies and reviews for further references to relevant trials, and we contacted trialists and companies for information about newly published studies.

A separate search for adverse effects was undertaken in February 2011 using MEDLINE and EMBASE (from 2005).

Final update searches for both RCTs and adverse effects were undertaken in August 2012. Although it has not been possible to incorporate RCTs and adverse effects studies identified through these final searches within this review, we will incorporate these into the next update.

Selection criteria

Randomised trials comparing active topical treatments against placebo or against vitamin D analogues (used alone or in combination) in people with chronic plaque psoriasis.

Data collection and analysis

One author extracted study data and assessed study quality. A second author checked these data. We routinely contacted trialists and companies for missing data. We also extracted data on withdrawals and on local and systemic adverse events. We defined long-term trials as those with a duration of at least 24 weeks.

Main results

This update added 48 trials and provided evidence on 7 new active treatments. In total, the review included 177 randomised controlled trials, with 34,808 participants, including 26 trials of scalp psoriasis and 6 trials of inverse psoriasis, facial psoriasis, or both. The number of included studies counted by Review Manager (RevMan) is higher than these figures (190) because we entered each study reporting a placebo and an active comparison into the 'Characteristics of included studies' table as 2 studies.

When used on the body, most vitamin D analogues were significantly more effective than placebo, with the standardised mean difference (SMD) ranging from -0.67 (95% CI -1.04 to -0.30; 1 study, 119 participants) for twice-daily becocalcidiol to SMD -1.66 (95% CI -2.66 to -0.67; 1 study, 11 participants) for once-daily paricalcitol. On a 6-point global improvement scale, these effects translate into 0.8 and 1.9 points, respectively. Most corticosteroids also performed better than placebo; potent corticosteroids (SMD -0.89; 95% CI -1.06 to -0.72; I^2 statistic = 65.1%; 14 studies, 2011 participants) had smaller benefits than very potent corticosteroids (SMD -1.56; 95% CI -1.87 to -1.26); I^2 statistic = 81.7%; 10 studies, 1264 participants). On a 6-point improvement scale, these benefits equate to 1.0 and 1.8 points, respectively. Dithranol, combined treatment with vitamin D/corticosteroid, and tazarotene all performed significantly better than placebo.

Head-to-head comparisons of vitamin D for psoriasis of the body against potent or very potent corticosteroids had mixed findings. For both body and scalp psoriasis, combined treatment with vitamin D and corticosteroid performed significantly better than vitamin D alone or corticosteroid alone. Vitamin D generally performed better than coal tar, but findings relative to dithranol were mixed. When applied to psoriasis of the scalp, vitamin D was significantly less effective than both potent corticosteroids and very potent corticosteroids. Indirect evidence from placebo-controlled trials supported these findings.

For both body and scalp psoriasis, potent corticosteroids were less likely than vitamin D to cause local adverse events, such as burning or irritation. Combined treatment with vitamin D/corticosteroid on either the body or the scalp was tolerated as well as potent corticosteroids, and significantly better than vitamin D alone. Only 25 trials assessed clinical cutaneous dermal atrophy; few cases were detected, but trials reported insufficient information to determine whether assessment methods were robust. Clinical measurements of dermal atrophy are insensitive and detect only the most severe cases. No comparison of topical agents found a significant difference in systemic adverse effects.

Authors' conclusions

Corticosteroids perform at least as well as vitamin D analogues, and they are associated with a lower incidence of local adverse events. However, for people with chronic plaque psoriasis receiving long-term treatment with corticosteroids, there remains a lack of evidence about the risk of skin dermal atrophy. Further research is required to inform long-term maintenance treatment and provide appropriate safety data.

PLAIN LANGUAGE SUMMARY

Skin treatments for chronic plaque psoriasis

Chronic plaque psoriasis is the most common type of psoriasis. Although any part of the body may be affected, the most commonly affected sites are the elbows, knees, and scalp. 'Topical' treatments (i.e. treatments applied to the skin) are usually tried first. These include vitamin D products, topical corticosteroids, tar-based preparations, dithranol, salicylic acid, and vitamin A products. As chronic plaque psoriasis is a long-term condition, it is important to find out which treatments work best and what adverse effects they have. This review describes average benefits of different treatments, while recognising that individuals will vary in their experience of each treatment.

The evidence was based on 177 studies, which, in total, included 34,808 people. Studies were typically about 7 weeks' long, but this ranged from 1 week to 52 weeks. Vitamin D products were found to work better than placebo (the base cream or ointment). Potent topical corticosteroids (strong, e.g. betamethasone dipropionate) and very potent (very strong, e.g. clobetasol propionate) topical corticosteroids were also effective.

Some studies compared vitamin D products directly with potent or very potent corticosteroids. These products had similar effects when applied to the body, but corticosteroids worked better than vitamin D for scalp psoriasis. Treatment that combined vitamin D with a corticosteroid was more effective than vitamin D alone and more effective than the topical corticosteroid alone. Vitamin D products generally performed better than coal tar, but studies found conflicting results when comparing vitamin D with dithranol.

Whether applied to the body or to the scalp, potent corticosteroids were less likely than vitamin D to cause 'local adverse events', such as skin irritation or burning, and people were therefore more likely to stop using vitamin D products. When studies examined whether topical treatments had effects within the body ('systemic adverse events'), we found no difference between placebo and any other treatment.

However, this may be because many trials did not properly assess systemic adverse events, rather than because there really was no difference.

More long-term studies would help doctors and people with psoriasis decide on the best way to treat this chronic condition.