



CALCIPOTRIENE

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Calcipotriene (calcipotriol) is a synthetic drug derived from calcitriol otherwise known as vitamin D. It works by regulating the production and growth of skin cells. In the United States, this drug was first marketed under the trade name Dovonex and is used mainly for the treatment of **psoriasis**. This drug has many off-label applications that are alternative therapies for many dermatologic diseases.

Mechanism: During a study on the effects of vitamin D on osteoporosis, the effect of calcipotriol on psoriasis was discovered. Some patients involved in this study included those with the presence of psoriatic lesions. During treatment with vitamin D analogs, the psoriatic lesions demonstrated significant reduction in number as compared to the number of lesions present before treatment was initiated.

The exact mechanism of action is still unknown, however, calcipotriol has shown to inhibit cell growth and development without any evidence of harmful effects to the cell itself. This inhibition of cell growth reverses the number of abnormal cells which are found in patients with psoriasis. Calcipotriol demonstrates a regulatory role on the skin's immune system, therefore reducing the expression of certain immune markers responsible for the development of psoriasis. In one study, patients applied calcipotriol ointment twice daily for 8 weeks. This study demonstrated marked improvement in 70% of patients and complete resolution of psoriasis in 11% of patients treated. The use of calcipotriol cream twice daily for 8 weeks had a slightly lower percentage of improvement and resolution but still considered significant at 50% and 4%, respectfully. Using twice daily application of calcipotriol has not been shown to be superior to once daily dosing in patients with psoriasis.

Uses: Calcipotriol ointment and cream is approved for treatment of mild to moderate plaque **psoriasis** in adults older than 18 years old. Calcipotriol topical solution is approved to treat chronic, moderately severe scalp psoriasis. There are also many potential off-label uses of this medication including:

- **Morphea/Localized scleroderma**
- **Porokeratosis**
- **Vitiligo**
- **Lichen planus**
- **Lichen nitidus**
- **Nail psoriasis**
- **Pityriasis rubra pilaris**

Side effects: Studies have shown that calcipotriol has an excellent safety profile. It is associated with very few serious adverse effects and well tolerated among patients undergoing treatment. Mild side effects that have been reported with the use of prescribed doses of calcipotriol cream and ointment include, but are not limited to the following: skin atrophy, folliculitis, burning, irritation, itching, skin dryness, rash, hyperpigmentation, redness, and increased calcium levels in the blood and urine. Side effects that warrant immediate medical attention include worsening of psoriasis, development of a new skin rash, and dermatitis (redness and skin swelling associated with itching).

Women planning to become pregnant or currently are pregnant should inform their physician before beginning a treatment regimen. Harmful effects on the fetus during pregnancy in animal studies have been observed, but there are currently no adequate studies in pregnant women using calcipotriol.

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Ultraviolet light exposure while using calcipotriol ointment or cream has been shown to increase the risk of skin tumor development. Those using calcipotriol should avoid excessive natural and artificial sunlight exposure while being treated with this medication. Hypercalcemia can also occur in patients using calcipotriol and should have calcium levels regularly monitored by a physician during the course of treatment.

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