

Hypercalcaemia and Hypercalciuria after Topical Treatment of Psoriasis with Excessive Amounts of Calcipotriol

Sir,

The efficacy of the vitamin D analogue calcipotriol in the topical treatment of chronic plaque psoriasis has been established in a large number of clinical trials (1, 2). Although calcipotriol has 100 times less effect on calcium homeostasis *in vivo* than 1,25-dihydroxyvitamin D₃, it may cause hypercalcaemia if used to excess (2, 3).

We report a patient suffering from generalized chronic plaque psoriasis, in whom topical application of excessive amounts of calcipotriol (Dovonex®) ointment resulted in an impressive improvement of his condition, but also in the development of hypercalcaemia and hypercalciuria.

A 73-year-old man with a long history of chronic plaque psoriasis presented with a recent exacerbation of his disorder refractory to therapy with dithranol and acitretin. The erythematous plaques covered about 30% of his body surface. Subsequent to a thorough explanation of the possible adverse effects of calcipotriol, particularly after its excessive unlicensed usage, he was prescribed calcipotriol ointment (50 µg/g) and was instructed to apply it topically twice daily according to the manufacturer's guidelines. Pretreatment serum adjusted calcium levels were within normal limits (2.47 mmol/l; normal range 2.25–2.75 mmol/l).

Fifteen days later the patient was seen again in our outpatient department and it was found that he had been applying approximately 420 g of calcipotriol per week for 2 weeks. His skin lesions revealed an impressive improvement; the physical examination was otherwise normal. Serum-adjusted calcium levels were elevated (3.22 mmol/l) and hypercalciuria (11.05 mmol/24 h; normal range 2.5–7.5 mmol/l) was evident. Serum phosphate, magnesium, alkaline and acid phosphatase, liver and renal function tests showed no abnormalities. Serum intact parathyroid hormone levels measured by immunoradiometric assay (CIS, Sur, Yvette, France) were within normal limits (23 pg/ml; normal values 10–65 pg/ml). Calcipotriol therapy was discontinued and 1 week later the values of both serum-adjusted calcium levels and 24-h urine calcium excretion returned to normal.

There have been reports of hypercalcaemia in patients either with extensive psoriasis who used excessive amounts of calcipotriol or with unstable or pustular psoriasis who had applied approximately 100 g of the drug per week, but also in two cases with plaque psoriasis using calcipotriol within its licensed specification (2, 3). Additionally, hypercalciuria has been observed in psoriatic patients subsequent to topical use

of 150 g calcipotriol per week for 10 months, or of 200–300 g and 360 g per week for two weeks (3). Interestingly, a rise in urine calcium excretion has also been demonstrated in patients using the drug at the maximum recommended rate of 100 g/week (3).

These reports taken together with our observation indicate that even short-term topical application of calcipotriol is capable of affecting systemic calcium homeostasis. This effect of calcipotriol is presently thought to be mediated by an enhancement of intestinal absorption of calcium and probably of phosphate, which may result in hypercalcaemia and/or hypercalciuria, hyperphosphataemia and hyperphosphaturia and in suppression of parathyroid hormone and 1,25 dihydroxyvitamin D₃ (3). In our case serum phosphate and parathyroid hormone levels were found to be within normal limits. However, since no baseline values of these parameters were available, it remains unknown whether therapy had exerted any modulatory effect on them.

Although in all reported cases so far serum and urine calcium levels returned to normal after discontinuation of therapy, calcipotriol-induced hypercalcaemia and hypercalciuria are adverse effects of serious concern. It is, therefore, of essential importance to closely monitor the serum levels and the urine excretion rate of calcium in psoriatic patients, particularly under long-term calcipotriol therapy, even when the manufacturer's guidelines are adhered.

REFERENCES

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