

Allergic contact dermatitis from dithranol

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Key words: allergic contact dermatitis; dithranol; anthralin; medicaments; psoriasis. © Munksgaard, 1999.

Dithranol (anthralin) is a synthetic derivative of a substance originally extracted from the araroba tree and is frequently used in the treatment of psoriasis (and alopecia areata). It is a known irritant and stains the skin.

Case Report

A 60-year-old man, with psoriasis vulgaris for the last 12 years, presented with an exacerbation. He was on methotrexate 2.5 mg, 3× weekly and to date had received 1210 mg of the drug. Bath water PUVA was commenced. For a few resistant plaques on the thighs, dithranol 0.01% cream was prescribed. 2 days later, erythema with vesiculation and exudation developed at the

sites treated. There was a past history of dithranol intolerance. Patch testing with various strengths of dithranol was done (Table 1). Patch testing with the same concentrations in 5 healthy volunteers was negative.

Discussion

Few cases of allergic contact dermatitis from dithranol have been reported (1–3). There is disagreement over its irritant threshold. Burden et al. (3) proposed 0.001% as the appropriate patch test concentration, while De Groot et al. (1) stated that 0.05% pet. gave sufficiently reliable results.

References

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3. Burden A D, Stapleton M, Beck M H. Dithranol allergy: fact or fiction? *Contact Dermatitis* 1992; 27: 291–293.

Table 1. Results of patch testing with dithranol

	0.01% pet.	0.005% pet.	0.0025% pet.
D2	++	+	+
D3	++	+	+

Active sensitization to sodium metabisulfite in hydrocortisone cream

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Key words: active sensitization; sodium metabisulfite; topical corticosteroids; medicaments; preservatives; patch testing technique; allergic contact dermatitis. © Munksgaard, 1999.

In performing assays for cumulative irritancy of topical corticosteroid formulations, we have actively sensitized 2 out of a panel of 50 to sodium metabisulfite. The formulations were 1% hydrocortisone (for over-the-counter distribution) in which metabisulfite was included at an unstated concentration. An edematous patch test response led to component testing: 2 subjects had a ++ response to sodium metabisulfite 1% pet., utilizing Finn Chambers (Epitest, Helsinki), the upper back and readings at D2 and D4.

Numerous adverse reactions have been attributed to sulfiting agents, including GI symptoms, urticaria, pruritus, angioedema, headache, asthma, and non-specific cutaneous lesions. Metabisulfites, along with other sulfiting agents, are used in the food and beverage industries as antioxidants and preservatives. They are also used in topical pharmaceuticals. The bisulfite of commerce consists chiefly of sodium metabisulfite, and for

all practical purposes, possesses the same properties as the true bisulfite (9). Intolerance reactions, of both immediate and delayed type, to sulfiting agents are increasingly being reported. Results of patch testing with various formulations containing sodium metabisulfite are given in Table 1.

Giorgini et al. (1) recently reported induction of contact dermatitis to sodium metabisulfite and Melcloderm cream. Doooms-Goosens et al. (2) found a strong positive reaction to sodium metabisulfite in 2 patients sensitive to ketoconazole cream, and concluded that there probably existed a reaction with features of both the immediate and delayed-type allergy to sodium metabisulfite. Vissers-Crouchs et al. (8) patch tested a man with recurrent facial seborrhoeic dermatitis, who had developed an itchy papulovesicular dermatitis on treatment with ketoconazole cream. Patch tests with the control cream base, as well as sodium sulfite at the concentrations given in

Table 1. Reported results of patch testing with sodium-metabisulfite-containing formulations

Compound	Patch test % of sodium metabisulfite	D2	D4	Controls		Refs.
				no.	(%)	
Meclocloderm cream (pet.)	1%	++	++	NS	NS	(1)
sodium metabisulfite (pet.)	1%	++	++	NS	NS	(1)
Neo-lidocaton (aq.)	0.2%	+	+	NS	NS	(2)
sodium metabisulfite (pet.)	5%	++	++	NS	NS	(2)
potassium metabisulfite (aq.)	1% and 5%	++	++	NS	NS	(3)
Veg-white (aq.)	10%	+++	+++	NS	NS	(4)
sodium metabisulfite (aq.)	10% and 20%	+++	+++	NS	NS	(4)
sodium metabisulfite (aq.)	2%, 5%, 10%	+	+	5	10%	(5)
sodium metabisulfite (aq.)	5%	+	—	20	5%	(6)
topical hydrocortisone (aq.)	0.2%	+	+	20	5%	(6)
clobetasol cream	NNG	++	++	NS	NS	(7)
sodium metabisulfite	NNG	++	++	NS	NS	(7)
ketoconazole cream	NNG	+++	+++	NS	NS	(8)
ketoconazole cream base	NNG	+++	++	NS	NS	(8)
sodium sulfite (aq.)	0.2%, 2%	+++	+++	NS	NS	(8)
sodium sulfite (pet.)	0.2%, 2%, 5%	+++	+++	NS	NS	(8)

NS: not stated ; NNG: no number given.

Table 1, were strongly positive. They concluded that this was a Type IV sensitivity to sodium sulfite.

Nater (3) reported a woman with severe allergic contact dermatitis on the hands due to occupational contact with metabisulfites in her job at a pharmaceutical company. Patch testing with potassium metabisulfite 1% and 5% aq. was positive. Avoidance of contact with the causative agent by wearing protective gloves cleared her dermatitis; however, a subsequent injection of lidocaine (presumably containing metabisulfite) for minor surgery caused a relapse. Similarly, Epstein (4) observed hand dermatitis in a salad maker. He reported a strong positive reaction to an antioxidant (Veg-white) containing metabisulfite. Strong positive patch tests to metabisulfite 10% and 20% aq. were also reported. These concentrations may be too high and might produce false-positive results. Apetato & Marques (5) studied a pastry factory worker who had had dermatitis on the backs of his hands for the past 5 months. The dough that he handled contained sodium metabisulfite at 0.04%. Patch tests with sodium metabisulfite 2, 5 and 10% aq. were all positive. Irritancy controls at 10% in 5 subjects were all negative.

We tested 20 volunteers with 5% pet. as a control group. Slight erythema but no edema was seen at D2 but not at D4. We suspect that the ideal test concentration has yet to be determined. Repeated open application testing (ROAT) might help to confirm the aller-

genicity of metabisulfite. Additional irritancy controls would also be welcome. A cooperative research group might consider adding metabisulfite to their standard series, as a test of its frequency as an allergen.

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