Action spectrum for etofenamate photoallergic contact dermatitis

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doi:10.1111/j.1600-0536.2011.01920.x

Key words: NSAID; etofenamate; photoallergic contact dermatitis; UVA.

Topical photoallergic contact dermatitis (PACD) is investigated by photopatch testing, and a consensus European methodology exists, which advises the use of ultraviolet (UV)A as the irradiation source (1). However, for most agents, the action spectrum for PACD has not been defined. We sought to determine the action spectrum for topical photocontact allergy to the non-steroidal anti-inflammatory drug (NSAID) etofenamate.

Case Report

A 25-year-old female presented with an erythematous papulo-vesicular rash on sun-exposed sites to which sunscreens had previously been applied. She was photopatch tested according to the European consensus methodology, using 5 J/cm^2 UVA (vertical bank of Philips Performance 40-W UVA tubes), with 19 organic UV filters and five topical NSAIDs as part of an ongoing European multicentre study. Grade ++ reactions (International Contact Dermatitis Research Group) were recorded to the organic UV filter benzophenone-3 and to etofenamate at 72 hr (48 hr after irradiation). She was advised to avoid these chemicals, although the relevance of the reaction to etofenamate was unknown, as there was no history of prior exposure.

Table 1. Monochromator readings 96 hr after irradiation of the test sites

Waveband (nm)	Dose (mJ/cm^2)	Untreated control	Pet. control	Etofenamate (2% pet.)
305 ± 5	5.6	0	0	0
	12	0	0	0
	27	0	0	0
335 ± 27	560	0	0	3
	1200	0	0	3
	2700	0	0	3
365 ± 27	2700	0	0	3
	5600	0	0	3
	12 000	0	0	3
400 ± 27	10 000	0	0	3
	22 000	0	0	3
	47 000	0	0	3
430 ± 27	82 000	0	0	0

0 = no response; 3 = well-demarcated and raised erythema.

Subsequently, monochromator phototesting [xenon arc lamp at 305 ± 5 (wavelength ± half-maximum

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Conflicts of interest: The authors have declared no conflicts.

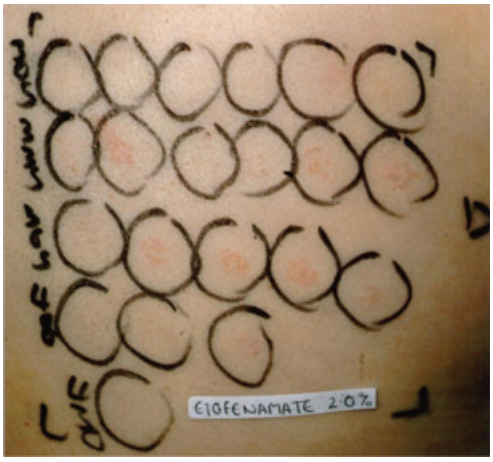

Fig. 1. Monochromator readings at 24 hr after irradiation on skin pretreated with 1 mg/cm^2 etofenamate 2% in pet.

bandwidth), 335 ± 27, 365 ± 27, 400 ± 27, and 430 ± 27 nm] (2) was performed on three 10 × 10 cm areas of the patient's back skin: untreated control; pretreatment for 2 hr with 1 mg/cm^2 pet. control; or pretreatment for 2 hr with 1 mg/cm^2 etofenamate 2% pet. The blinded readings of test sites at 96 hr are given in Table 1. Raised erythematous eczematous responses were seen within the UVA wavebands of 335 ± 27 and 365 ± 27 nm, extending to 400 ± 27 nm, consistent with PACD caused by etofenamate. The emerging PACD responses at 24 hr are shown in Fig. 1.

Discussion

This action spectrum supports the practice of using UVA irradiation for photopatch testing with this agent.

References

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