

## MINIMAL ERYTHEMA DOSE TO ULTRA-VIOLET LIGHT IN PARTHENIUM DERMATITIS

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In Parthenium dermatitis, photosensitivity is a common feature. We studied the minimal erythema dose to UVA (2-18J/cm<sup>2</sup>) and UVB (30-70 mj/cm<sup>2</sup>). MED to UVB was lowered in 9 cases but not detected in 1 whilst MED to UVA was seen in only 1 case. Reduction of MED to UVB is a definite indicator of photosensitivity in Parthenium dermatitis.

**Key Words :** Parthenium dermatitis, Minimal erythema dose

### Introduction

Parthenium hysterophorus belongs to the family of compositae and is a common cause of air borne contact dermatitis (ABCD) with features suggestive of photosensitivity. Photocontact dermatitis secondary to Parthenium has been reported.<sup>1</sup> We undertook this study to determine the minimal erythema dose (MED) to UVB and UVA in ABCD to Parthenium.

### Materials and Methods

10 cases of ABCD to Parthenium confirmed by patch testing were studied. MED to UVB (30 - 70mJ/cm<sup>2</sup>) and to UVA (2 - 18 J/cm<sup>2</sup>) was determined using a whole body phototherapy unit obtained from Waldman. A template was used to deliver increasing doses of ultraviolet light over back.<sup>2</sup>

### Results

Table 1 shows the MED values of the 10 cases, MED to UVB was significantly lowered in 9 (Mean: 33.3 mj/cm<sup>2</sup>). MED to UVA was detected in only 1 case.

The minimal erythema dose (MED) is

**Table I.** Minimal erythema dose to UVB and UVA

Sl. No.	MED	
	UVB (mj/cm <sup>2</sup> )	UVA (J/cm <sup>2</sup> )
1.	8	9
2.	10	-
3.	30	-
4.	55	-
5.	50	-
6.	30	-
7.	65	-
8.	65	-
9.	20	-
10.	-	-

defined as the minimal single dose of ultraviolet radiation to produce a clearly marginated erythema at the irradiated skin site, expressed as energy per unit area, mj/cm<sup>2</sup> or J/cm<sup>2</sup> for UVB and UVA respectively,<sup>3</sup> reading being taken, after 24 hours for UVB and 48 hours for UVA.

### Comments

History of inability to tolerate sunlight and heat is frequently elicited in Parthenium dermatitis. Photosensitivity is investigated by demonstration of MED and by photopatch testing. We found a significant lowering of MED to UVB (mean: 33.3 mj/cm<sup>2</sup>), the MED for normal Indian skin being 131 mj/cm<sup>2</sup> (personal observation). In Type III skin the MED may be as high as 300 mj/cm<sup>2</sup>.<sup>4</sup> Photopatch testing

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with Parthenium in 3 of the present cases and in many of our earlier cases has been consistently negative with equal reaction in both irradiated and non-irradiated sites (unpublished observation), thus implying absence of photocontact allergy or phototoxicity. Compositae allergens do not apparently cause positive photopatch test reactions but have phototoxic properties in vitro.<sup>5</sup>

Reduction of MED to UVB is a definite indicator of photosensitivity in Parthenium dermatitis. MED to UVA should be attempted using a solar simulator or monochromator. The role played by infrared rays in the light exacerbation of Parthenium dermatitis needs further evaluation.

## References

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