

### P3109

#### Discoid lupus erythematosus treated with methylaminolevulinate photodynamic therapy

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Photodynamic therapy (PDT) is a treatment option widely used to treat actinic keratosis, basal cell carcinoma, and Bowen disease. Evidence has shown that, in these skin disorders, PDT is effective and associated with excellent cosmetic results and low recurrence rates. Nononcologic applications of PDT in dermatology include acne vulgaris, photorejuvenation, hidradenitis suppurativa, rosacea, cutaneous T-cell lymphoma, alopecia areata, verruca vulgaris, Darier disease, tinea infections psoriasis, lichen planus, lichen sclerosus, and scleroderma. Anecdotal reports appear to suggest that PDT can have an antisclerotic effect, causing reduction of collagen density, without damaging keratinocytes. Recently, PDT was successfully used to treat cutaneous ulcers in a patient with systemic lupus erythematosus and antiphospholipid syndrome. In the available literature, there are reports of the use of PDT in discoid lupus erythematosus (DLE). An 87-year-old male with scalp DLE (resistant to various conventional treatments) underwent two sessions of methylaminolevulinate PDT, achieving good results.

Commercial support: None identified.

### P3110

#### Allergic sensitization and irritation to oxybenzone-containing sunscreen products: A quantitative metaanalysis of 64 exaggerated use studies

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Background: Oxybenzone is an active sunscreen ingredient that absorbs a broad spectrum of ultraviolet (UV) light, peaking in the UVB region and extending into the UVA. Although the overall incidence of sensitization and irritation from oxybenzone in the general population remains unclear, a few studies have reported on the incidence in specific circumstances. However, the relevance of these studies to the general population is limited, because the sample populations generally have consisted of individuals who sought medical attention for preexisting skin conditions. Therefore, the reported incidence of allergic reactions to oxybenzone may be overestimated for the general population. The objective of this metaanalysis was to determine the safety of oxybenzone in participants recruited from the general population.

Methods: The data from 64 unpublished exaggerated use human repeat insult patch tests (HR IPT) and photoallergy (PA) studies sponsored by Schering-Plough Health Care Products, Inc, were aggregated and analyzed to evaluate the irritancy and sensitization potential of products containing oxybenzone at 1% to 6%.

Results: Forty-eight of 19,570 possible dermal responses were considered to be suggestive of irritation or sensitization; the mean rate of responses across all formulations was 0.26%. Sensitization rates did not correlate significantly with oxybenzone concentration. The available rechallenge data indicated that only eight of these responses resulted from oxybenzone; the mean rate of sensitization to oxybenzone was 0.07%.

Conclusions: Our data indicate that sunscreens formulated with 1% to 6% oxybenzone do not possess significant sensitization or irritation potential for the general public. Furthermore, these data suggest that the incidence rate implied in the published literature overestimates the actual incidence of sensitization/irritation relates to oxybenzone-containing sunscreen products in the general population.

Commercial support: 100% sponsored by Schering-Plough HealthCare Products, Inc.

### P3111

#### Combined treatment of narrowband ultraviolet B light (NBUVB) phototherapy and oral polypodium leucotomos extract versus NB UVB phototherapy alone in the treatment of patients with vitiligo

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Vitiligo is a skin disease characterized by a loss of normal pigmentation in the skin. Several treatments exist, but none of them are really effective. Low levels of antioxidant enzymes have been demonstrated in the epidermis of vitiligo patients. Clinical trials with antioxidants as an adjunct to ultraviolet B (UVB) light phototherapy have shown encouraging results. The aim of our study was to investigate if the addition of an oral antioxidative and immunomodulatory plant extract (*Polypodium leucotomos*) to NBUVB phototherapy may improve NBUVB-induced repigmentation. Fifty-seven patients with generalized vitiligo were enrolled in this randomized prospective study. Twenty-nine patients were randomly selected to receive combined therapy with 480 mg oral *P leucotomos* given once daily while 28 patients received NBUVB phototherapy alone. All subjects were treated with NBUVB on a twice weekly schedule. Treatment was continued for up to 6 months. Our results clearly demonstrate that the intake of oral *P leucotomos* to NBUVB improved the extent of repigmentation and increased the response rate compared with patients treated with NBUVB alone (47.8% vs 22%). In conclusion, our study suggests that oral supplementation of *P leucotomos* to NBUVB phototherapy might enhance the extent of repigmentation. Larger prospective studies demonstrating statistical significance of this novel therapeutic association are needed in order to confirm these observations.

Commercial support: None identified.

### P3112

#### Oral *Polypodium leucotomos* extract supplement decreases ultraviolet A light-induced "common deletion" in healthy volunteers

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Background: Ultraviolet A (UVA) light radiation induces the generation of the "common deletion," a 4977 base pairs mitochondrial DNA deletion that is thought to play a role in aging of human tissues. *Polypodium leucotomos* extract, an antioxidant, has been shown to have photoprotective properties.

Objective: To investigate the effect of *P leucotomos* on the common deletion after UVA exposure.

Methods: Ten subjects ( $\geq 18$  yrs of age) were randomized to receive *P leucotomos* or no treatment. A baseline skin biopsy was taken from the right volar forearm, followed by UVA minimal erythema dose (MED-A) determination on the left volar forearm of each patient. On the following visit, each patient was exposed to a dose of two times and three times their MED-A on different windows on the right volar forearm. After 24 hours, biopsies were taken from UVA-treated and non-UVA-treated sites. Real-time polymerase chain reaction was used to determine common deletion levels in the specimens. Two-way analysis of variance and interaction significance were used to analyze the data.

Results: Two patients in the non-*P leucotomos*-treated group did not have detectable baseline common deletion values and were excluded from data analysis. At  $2 \times$  MED, average common deletion values (normalized to baseline) in the non-*P leucotomos*-treated group ( $n = 3$ ) increased by 217% over control, while values in the *P leucotomos*-treated group ( $n = 5$ ) decreased by 84% ( $P = .06$ ). At  $3 \times$  MED, common deletion in the non-*P leucotomos*-treated group increased by 760% over control, while the *P leucotomos*-treated group showed a 61% increase ( $P = .07$ ). No interaction significance was found ( $P = .08$ ).

Conclusion: *P leucotomos* showed a strong trend towards significance in decreasing levels of the common deletion, a photoaging marker, in response to UVA. Interaction analysis suggested that the effects of *P leucotomos* in preventing formation of common deletion increases with more UVA exposure.

Commercial support: None identified.