

Photodynamic therapy of dermatoses other than non-melanoma skin cancer

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Even though photodynamic therapy (PDT) is a firmly established niche treatment for non-melanoma skin cancer (NMSC), its potential as a treatment for other dermatoses has been somewhat neglected. It is disappointing that little clinical research has been conducted in this area, as it may prove to be even more useful for treating dermatoses than it is for NMSC.¹

Dr Gerald Weinstein and colleagues at the University of California have performed much of the work investigating PDT in dermatoses other than NMSC.² In one of their studies, they assessed various concentrations of aminolaevulinic acid (ALA) for their capacity to induce fluorescence, using a Wood's light in a darkened room. Solar keratoses (SK) and inflammatory dermatoses (psoriasis and acne vulgaris) developed visibly significant fluorescence. Fluorescence tended to be brighter in sun-exposed skin (both lesional and non-lesional skin), and brighter in inflammatory dermatoses than in SK.²

Another study involved treating psoriasis with ALA PDT three times weekly using blue fluorescent tube light.³ Modest improvement was noted after a few weeks of treatment, but the trial was limited by its design; the ALA concentrations used were too strong and the treatments too frequent. Most subjects could not tolerate more than approximately one minute of blue light exposure because of pain.

Regular intermittent treatments (e.g. monthly) may be the best approach to treating dermatoses other than NMSC. The evidence for this relates to the experience of one of the trial subjects, who applied 10 and 20% ALA to psoriasis on the left and right sides of his abdomen on rising. After driving to his 08.30 am appointment for light treatment, the areas were already sore and red; presumably light through the windscreen, and his white shirt and possibly within his home had triggered the PDT reaction. Accordingly, his treatment that day was cancelled, and the reaction was followed for the next few weeks. At four weeks, 90% of the psoriasis had resolved,

leaving completely flat, brown areas. The psoriasis gradually recurred over the following weeks; some 50% of the plaques were in remission 4 months later.

However, the long-term outcome for repeated treatment in this manner is unknown. It has been difficult to obtain sponsorship to conduct trials in this area, but now that suitable creams and PDT devices are commercially available, studies may be more readily organized, and the long-term implications assessed.

Erythropoietic porphyria (EPP) patients who have survived to adulthood may also provide some indication of the long-term effects of topical PDT. Erythropoietic porphyria is not strictly equivalent to PDT, since EPP patients tend to avoid sun exposure, but it would be interesting to assess the incidences of SK, basal cell and squamous cell carcinoma and also inflammatory dermatoses in these patients.

In the future it may be possible to treat solar damaged skin by using a tiny amount of an appropriate erythroporphyrin precursor in a suitable sunscreen base, to use regularly on photo-damaged skin. This may lead to photo-rejuvenation but also prevention of development of skin cancers and solar keratoses.

REFERENCES

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