

The effect of UV therapy on immune function in patients with psoriasis

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Article first published online: 29 JUL 2006

DOI: 10.1111/j.1365-2133.1993.tb03307.x

Summary Ultraviolet radiation (UVR) is known to suppress some cell-mediated immune responses to antigens encountered during or soon after exposure. Phototherapy is widely used in psoriasis, and this study was undertaken to monitor changes in a range of immunological parameters during standard courses of treatment, with the aim of ascertaining whether such modulations contribute to the effectiveness of therapy. The responses of 17 patients with psoriasis undergoing UVB therapy, and four receiving PUVA therapy, were compared with 15 patients receiving coal tar treatment and four normal subjects undergoing UVB irradiation. In each case, samples were taken before starting therapy, after 4 weeks of therapy, and 4 weeks after completion of treatment. Serum immunoglobulin isotypes and complement components were within normal ranges in most of the psoriasis patients, and remained unchanged throughout therapy. Similarly, percentages of subsets of peripheral blood mononuclear cells (PBMC) were normal, and were unaltered by treatment. Patients who were already infected with herpes simplex virus (HSV), as demonstrated by a positive lymphoproliferation test *in vitro*, were monitored for asymptomatic HSV shedding and HSV recrudescences during therapy. There was little evidence that phototherapy caused reactivation of the virus. No significant alteration in lymphoproliferative response to HSV and to the mitogen concanavalin A was observed during therapy. Epidermal cells and blood adherent cells were used to present HSV to PBMC, depleted of adherent cells and enriched for T cells, in a lymphoproliferative assay. The functional antigen-presenting ability of adherent cells remained unchanged throughout therapy, whereas that of epidermal cells was suppressed during UVB irradiation and recovered, in most instances, after UVB therapy had been completed. The epidermis of patients with psoriasis contained about three times the quantity of urocanic acid (UCA) of normal subjects, whereas the UCA concentration in suction blister fluid did not differ between the two groups. During UVB irradiation, the percentage of *cis*-UCA rose in both the epidermis and suction blister fluid of all subjects, and it remained elevated in the blister fluid after therapy had finished. Tumour necrosis factor- α was measured in suction blister fluid, and its concentration did not alter consistently as a result of therapy. Whether any of the immunological parameters measured, and the changes noted, contribute to the effectiveness of phototherapy in the treatment of psoriasis remains uncertain.

British Journal of Dermatology

Volume 129, issue 1, pages 28- 38, July 1993