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*Accepted April 28, 1999*

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## UVA1 for Treatment of Keloids

*Sir,*

The various therapies for keloids usually have only limited effect. Encouraged by the good results of UVA1 (340–400 nm) irradiation on localized scleroderma (1, 2) we tried high-dose UVA1 phototherapy on keloid scars. UVA1 irradiation has been shown to stimulate collagenase production by human fibroblasts *in vitro* (3).

### PATIENTS AND METHODS

A 21-year-old Caucasian woman, a 21-year-old Asian man and a 40-year-old Caucasian man participated in the study. They presented with a several year history of a stable keloid secondary to tuberculin vaccine in the first case and to acne in the other 2 cases. The location of the keloids was right shoulder, left shoulder and chest, respectively. The size of the keloids ranged 2–7 cm in diameter. None of the keloids had been treated during the last 12 months. The patients received 100 J/cm<sup>2</sup> UVA1 (UVASUN 2000, Mutzhas Aktiengesellschaft, CH-6002 Luzern, Switzerland) 3 times a week for 5–6 weeks. The final cumulative doses for the patients were 1700, 1800 and 1500 J/cm<sup>2</sup>, respectively, given strictly to the lesion alone. The thickness of the keloid was measured before and after treatment with a DermaScan C<sup>®</sup> Ver. 3 (Cortex Technology, Hadsund, Denmark) 20 MHz ultrasound device.

### RESULTS

The treatment was tolerated well, and 2 of the patients experienced subjectively softening of the keloid but none had any macroscopic reduction of the scar. The scars were pigmented, but not in a cosmetically disturbing way. No change in the thickness was observed. The keloids measured 6.9, 10.2 and 6.0 mm before treatment and 6.3±0.5 mm, 9.8±0.4 and 6.2±0.2 after treatment, respectively.

### DISCUSSION

We found no effect of UVA1 irradiation on stable keloids, contrary to a recent article reporting a successful treatment in 1 case (4). The dose used in that study was 2860 J/cm<sup>2</sup>, i.e. almost twice as high as we used here. This might explain the

lack of response in the present experiment. The UVA dose, thus, needs to be high enough in future studies. The characteristics of the scar tissue, i.e. hypertrophic scar versus keloid and the thickness of the lesion, are also likely to play a role. The keloid in the above publication seemed thinner than the keloids in the present study. The problem with high dose UVA is that the treatment is time-consuming; a single treatment takes about 30 min, and the patient needs to attend up to 3–4 times a week for 2 months. The treatment might be worth trying in combination with other treatment modalities in order to reduce the UVA dose, or for use postoperatively on early lesions.

### ACKNOWLEDGEMENTS

We thank Dr Øystein Førre, MD and Dr Jørn Thoen, MD, Rikshospitalet, Oslo, for letting us use the DermaScan C<sup>®</sup> and Mr Bjørn Johnsen, Norwegian Radiation Protection Authority, for measuring the spectral irradiance of the light source.

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*Accepted June 7, 1999.*

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