REFERENCES

1. Gage AA, Meenaghan MA, Natiella JR, Green GW Jr. Sensitivity of pigmented mucosa and skin to freezing injury. Cryobiology 1979; 16: 348–361.
2. Zouboulis ChC. Principles of cutaneous cryosurgery: an update. Dermatology 1999; 198: 111–117.
3. Almond-Roesler B, Zouboulis ChC. Milde Kryochirurgie zur Behandlung aktinischer Lentigines. Allergologie 1999; 21: 420–421.
4. Stern RS, Dover JS, Levin JA, Arndt KA. Laser therapy versus cryotherapy of lentigines: a comparative trial. J Am Acad Dermatol 1994; 30: 985–987.
5. Raulin C, Petzold D, Hellwig S. Lentigo benigna. Entfernung durch den gütegeschalteten Rubinlaser. Hautarzt 1996; 47: 44–46.
6. Rafal ES, Griffiths CEM, Ditre CM, Finkel LJ, Hamilton TA, Ellis CN, et al. Topical tretinoin (retinoic acid) treatment for liver spots associated with photodamage. N Engl J Med 1992; 326: 368–374.
7. Collins P, Rogers S, Goggin M, Manning W. Cryotherapy for lentigo maligna. Clin Exp Dermatol 1991; 16: 433–435.
8. Green T, Ball RY, Pye RJ. Malignant melanoma developing after cryotherapy for lentigo maligna. Br J Dermatol 1991; Suppl 125: 18.

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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^2 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^2, respectively, given strictly to the lesion alone. The thickness of the keloid was measured before and after treatment with a DermaScan C® 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^2, 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.

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REFERENCES

1. Kercher M, Volkenandt M, Gruss C, Reuther T, von Kobyletzki G, Freitag M, et al. Low-dose UVA phototherapy for treatment of localized scleroderma. J Am Acad Dermatol 1999; 38: 21–26.
2. Stege H, Berneburg M, Humke S, Klammer M, Grewe M, Grether-Beck S, et al. High-dose UVA1 radiation therapy for localized scleroderma. J Am Acad Dermatol 1997; 36: 938–944.
3. Schaffetter K, Wlaschek M, Hogg A, Bolsen K, Schothorst A, Goerz G, et al. UVA irradiation induces collagenase in human dermal fibroblasts in vitro and in vivo. Arch Dermatol Res 1991; 283: 506–511.
4. Asawanonda P, Khoo LSW, Fitzpatrick TB, Taylor CR. UV-A1 for keloid. Arch Dermatol 1999; 135: 348–349.

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