Sir, Solar lentigines are common benign melanocytic proliferations representing a cosmetic problem in older Caucasian individuals. Melanocytes are the most vulnerable skin cells to cold and are destroyed at 4 to 7 °C. Indeed, Zouboulis et al. have shown that liquid nitrogen produces excellent results in patients with large lentigo lesions. Stern et al. have reported that liquid nitrogen cryosurgery was superior to argon or CO₂ laser therapy in the treatment of solar lentigines.

We therefore evaluated the effectiveness of two brief gentle cryosurgery regimens in 20 female Caucasian patients with solar lentigines on the back of the hands (diameter 3 mm). A randomized, controlled, prospective trial compared single treatments of 5 s (group A; n = 10, aged 66·9 ± 10·3 years) and 10 s (group B; n = 10, 61·8 ± 10·4 years) with a contact cryosurgical unit using a Peltier thermoelectric element achieving a skin surface temperature of 32 °C (Kryomed®, MediUm-TECH, Berlin, Germany) (Fig. 1). The therapeutic result was evaluated after 1 and 6 months by visual inspection. In addition, a chromametric assessment of the colour of the lesion was performed using a Minolta CR 300 Chroma Meter® (Osaka, Japan). The chromameter was set in the L*a*b* colour space. The equation $C^* = [a^*^2 + b^*^2]^{1/2}$ describes the quality of colour. $L^*$ represents the 'value' of the colour, and in comparisons, positive values indicate lighter and negative darker colours. The equation $E^* = [L^*^2 + a^*^2 + b^*^2]^{1/2}$ takes into consideration both the quality ($C^*$) and the value ($L^*$) of colour and allows an overall comparison of colours. Measurements of skin lesions at different time points were made comparable by concomitant evaluation of normal skin of the same anatomical site.

 Clinically, both regimens were shown to produce substantial lightening of the lesions in 80% (group A) and 100% (group B) of patients (Fig. 2). Excellent results were obtained in 20% (group A) and 50% (group B) of patients. Minimum skin atrophy was detected in 10% and 60% of patients, respectively (not statistically significant).

The chromametric measurements correlated with the classification of the clinical response ($P = 0·012$). One month after treatment, no significant $E^*$ difference could be obtained. In contrast, 6 months after treatment, a significantly less $E^*$ difference between lesion and normal skin in comparison to the data of the lesion prior to treatment was found in both groups (A: $P = 0·017$, B: $P = 0·028$) indicating an overall improvement of the lesions (Table 1). Evaluation of the colour value confirmed the similar therapeutic results in the two groups. A significant increase of $C^*$ detected in group B one month after treatment in comparison to the pretreatment data ($P = 0·04$) was due to a temporary enhanced erythematous response (increased $a^*$).

In conclusion, brief gentle cryosurgery was shown to produce high cure rates and good or excellent cosmetic results in solar lentigines. The contact unit used in the study generates freezing temperatures by a Peltier effect cooler, which is a closed system for cryoprobe
applications only. It develops a probe tip temperature of 32 °C by a thermoelectric procedure and therefore does not involve the use of a cryogen. This new instrument represents a cost-effective improvement in the management of solar lentigines.

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References


Forward Links to Citing Articles

• Akira Kawada, MD, PhD, Hatsuki Shiraishi, MD, Mutsuyo Asai, MD, Hiroko Kameyama, MD, Yoshiko Sangen, MD, Yoshinori Aragane, MD, PhD, and Tadashi Tezuka, MD, PhD. Clinical Improvement of Solar Lentigines and Ephelides with an Intense Pulsed Light Source. Dermatologic Surgery 28: 6, 504-508.