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Gain-switched 311-nm titanium:sapphire laser treatment for alopecia areata: A pilot study

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Background: Alopecia areata (AA) is an autoimmune skin disorder causing hair loss and has a large impact on patients' quality of life. Recently, a gain-switched 311-nm titanium:sapphire laser (TSL) was developed and demonstrated similar therapeutic efficacy to excimer laser in the treatment of vitiligo.

Objective: We evaluated the effectiveness and safety of the 311-nm TSL in the treatment of AA.

Methods: We conducted an open trial and enrolled 16 AA patients from June 2017 to December 2018. A 311-nm TSL laser treatment was conducted once or twice a week. The dose started at 300 mJ/cm^2 and increased by 50 mJ in each subsequent session until post-treatment erythema occurred.

Results: Among the 16 enrolled AA patients, three had alopecia totalis (AT). The patients received a median of 12 sessions (range 4-35 sessions) of TSL treatment. Eleven patients (68.8%) showed excellent to complete (≥75%) hair regrowth after medians of 11 (range 6-35) treatments for 4 (range 2-12) months. Of the remaining 5 patients, 3 had good (50%-74%, n = 1) or moderate (25%-49%, n = 2) hair regrowth. The other 2 patients who had AT showed no hair regrowth. There were no serious adverse events to stop the treatment.

Conclusions: The 311-nm TSL treatment has several advantages over conventional AA treatments such as intralesional corticosteroid injection and topical corticosteroid. It provides noninvasive, pain-free treatment to AA patients, without any risk of adverse drug reaction. In particular, TSL treatment has great benefits for children who worried about painful treatment.

Commercial disclosure: None identified.

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Motorized 0.5-mm micropunch grafting for vitiligo: Skin seeding technique

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Introduction: Although punch grafting is a simple technique for the treatment of refractory vitiligo, the time-consuming nature and frequent cobblestoning remain the limitation of the procedure.

Objective: To show the effectiveness of the SST for refractory vitiligo, and to compare the treatment outcome of the SST according to the direction of punch grafting.

Methods: This was a prospective split-body clinical study. A total of 100 lesions in 50 patients (6 to 67 years old) with stable vitiligo refractory to nonsurgical treatment were included from June 2017 to May 2018. In each patient, two lesions in the same body area were divided into the right-side-up and upside-down group, respectively. A 0.5-mm punch loaded into the handpiece of micromotor was used for skin graft from both donor and recipient sites. In the right-side-up group (n = 50), the grafts were placed into the chambers of the recipient site in the right direction, and in the upside-down group (n = 50), the grafts were placed upside down. After 1-week of steri-strip fixation, the lesions were treated with excimer laser for 3 months.

Results: Treatment success (defined as ≥75% repigmentation) was achieved in 72% of the right-side-up group and 76% of the upside-down group, respectively. Cobblestone appearance was apparent in 4% of the right-side-up group and 2% of the upside-down group, respectively. Most of the patients were very satisfied with this technique in both groups.

Conclusions: This technique is rapid and convenient with notably minimal rates of adverse events.

Commercial disclosure: None identified.

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Multiple carotenoids supplementation enhances human skin protection against ultraviolet A−induced skin pigmentation: A randomized, double-blind, placebo-controlled clinical trial

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Extrinsic photoprotection of human skin is determined by the efficacy of sunscreens to prevent ultraviolet (UV) B radiation-induced erythema and UVA radiation-induced pigmentation. In addition to externally applied sunscreens, oral supplementation of carotenoids has been clinically shown to protect human skin against ultraviolet B (UVB) radiation-induced erythema (sunburn). It is not known if this is also the case for UVA radiation-induced pigmentation. The main objective of this research was to clinically evaluate the photoprotective effects of daily supplementation with carotenoids against UVA radiation-induced pigmentation, in addition to UVB-induced erythema. In this randomized, double-blind, placebo-controlled trial, 60 subjects (Fitzpatrick types II-IV) received Nutrilite Multi Carotene supplement (daily dose of beta-carotene 12.75 mg, alpha-carotene 3.30 mg, lutein 3.36 mg and zeaxanthin 0.16 mg) or placebo for 12-weeks. UVA-induced minimal persistent pigmentation dose (MPPD), UVB-induced minimal erythemal dose (MED) and skin carotenoid levels were measured at baseline, 4, 8 and 12 weeks of intervention. Skin color was evaluated by expert clinical graders and by colorimetry. Carotenoid levels in the skin were measured by the Biozoom device. In this 12-week multi-carotene supplementation study, the intervention group showed a significant increase (P = .000) relative to the placebo group in (i) skin carotenoid levels, (ii) UVB-induced MED, and (iii) UVA-induced MPPD values obtained by colorimetry. In conclusion, this study supports the finding that the daily supplementation with carotenoids protects human skin against both UVB-induced erythema and UVA-induced pigmentation.

Commercial disclosure: The study was fully funded by Amway Corporation.

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Sun protection behaviors among active members of the United States Lifesaving Association

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The USLA is a nationwide non-profit organization comprised of beach lifeguards who, by nature of their profession, are exposed daily to UV radiation. In this cross-sectional survey study, anonymous data was collected during the summer of 2018 at the National Lifeguard Championships in Virginia Beach, VA. Sun protective behaviors including wearing a hat, sunglasses, protective clothing, using sunscreen, and seeking shade were scored. A composite score, ranging 0-10, was created using responses related to sun protective behaviors. Simple linear regression models were fit to assess the relationship between lifeguard lifestyle predictors on the sun-behavior composite score. Significant lifeguard lifestyle predictors were entered into a multiple linear regression model to assess their overall group effect on the composite score. A total of 215 registered USLA lifeguards aged ≥ 18 years old completed the survey study. The study population was 64.2% male and 35.8% female with an average age of participants of 34.2 years. The most commonly used sun protective behavior was sunglasses (85%). The overall average composite score was 7.5 ± 1.9. In the multiple linear regression model, gender (P = .0012), desiring a tan (P = .0008), and increased summer daytime hours (P = .049) were significant negative impactors of composite scores. Because of their occupational sun exposure, beach lifeguards are at an increased risk of UV radiation associated skin damage. As such, this is an important population that would benefit from skin-protective education. Follow-up and intervention could potentially improve the sun protective choices made by beach lifeguards and potentially decrease the risk for skin cancer.

Commercial disclosure: None identified.