

Cosmetic & Pharmaceutical Research > Cosmetic & Pharmaceutical Research > Pigmentation / Melasma

27

Intense pulsed light therapy for superficial pigmented lesions evaluated by reflectance-mode confocal microscopy and optical coherence tomography.

Yamashita T, Negishi K, Hariya T, Kunizawa N, Ikuta K, Yanai M, Wakamatsu S.; J Invest Dermatol. 2006 Oct;126(10):2281-6. Epub 2006 Jun 1.

ABSTRACT

Intense pulsed light (IPL) therapy is reported to be effective for pigment removal from pigmented lesions.

However, the dynamic mechanism of pigment removal by IPL therapy is not completely understood. We investigated the mechanism of IPL therapy for the removal of pigmented skin lesions through non-invasive observation of the epidermis.

Subjects with solar lentigines on the face were treated with three sessions of IPL therapy.

The solar lentigines were observed on consecutive days after the treatments using reflectance-mode confocal microscopy (RCM) and optical coherence tomography (OCT).

In addition, desquamated microcrusts that formed after the treatment were investigated by transmission electron microscopy (TEM).

The images of RCM and OCT showed that the melanosomes in the epidermal basal layer rapidly migrated to the skin surface. The TEM images of the extruded microcrusts revealed numerous melanosomes together with cell debris. It was also found that the IPL irradiated melanocytes in the lesions seemed to be left intact and resumed their high activity after treatment.

We conclude that IPL therapy effectively removed the dense melanosomes in the epidermal-basal layer. However, additional application of suppressive drugs such as hydroquinone or Q-switched laser irradiation is necessary to suppress the remaining active melanocytes.