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Report on Scientific Meeting

Experts forum on OPT™ treatment for melasma

Reported by BBS Tong 唐碧茜

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Organiser: The Hong Kong Society of Dermatology and Venereology

New approaches for the treatment of melasma and pigmentation

Speaker: Dr. Mitchel Goldman
Volunteer Clinical Professor of Dermatology, University of California, San Diego, USA

Dyspigmentation and melasma are common in Asian population. Melasma is a widespread acquired hyperpigmentation disorder of unknown aetiology. The mainstay of treatment involves sun avoidance and/or protection. Moreover, a variety of topical depigmenting agents, sunscreens and procedures are available to promote lightening. However, no single treatment is uniformly effective in all patients.

The use of topical depigmenting agents seldom completely clears the dyspigmentation and many depigmenting agents have irritating effects on the skin. Recently, laser and intense pulsed light (IPL) devices have demonstrated efficacy when used as monotherapy or in combination with topical medications. The speaker has studied the effect of combining the use of the IPL with 2 forms of lightening systems (Obagi Nu-Derm™ and Triluma™) to enhance treatment efficacy and tolerance. It was found that significant improvement as well as a decrease in erythema was obtained when the IPL was given 4 to 8 weeks after initiation of topical treatment.

Triple combination (TC) cream is a stable combination of fluocinolone acetonide 0.01%, hydroquinone 4%, and tretinoin 0.05%. The speaker discussed his study that evaluated the safety and efficacy of TC cream when used sequentially with IPL treatments in patients with moderate to severe melasma. The results revealed that melasma severity was significantly less with TC cream and IPL than with inactive cream and IPL at weeks 6 ($p=0.007$) and 10 ($p=0.002$). Improvement in melasma was greater with TC cream and IPL than with inactive cream and IPL according to investigator and patient evaluations at weeks 6 and 10 ($p<0.001$ for both time points). Treatment with TC cream and IPL was well tolerated. The results of the study suggested that TC cream and IPL treatment were an effective and safe treatment option for patients with melasma.

Furthermore, the speaker suggested that the skin involved with melasma has a higher density and larger diameter of blood vessels compared with surrounding skin. The presence of a vascular component may also be related to the decreased efficacy of pigment specific laser treatment in those patients. The speaker explored the use of lasers to target the vascular component, which appears to be activated in melasma. Since the IPL acts on both vascular

and pigmented lesions, it may enhance efficacy of treatment in these patients.

Learning points:

The major problem with lasers and IPL is the notable risk for post-inflammatory hyperpigmentation. Future developments point to the use of low-energy pigment-based lasers such as the Q-switched 1064-nm Nd:YAG laser to treat the melanocytic component, combined with long-pulsed vascular-specific lasers and/or IPL to treat the underlying vascular component.

Basic concept of OPT™ treatment for melasma

Speaker: Dr. Bang Soon Kim
Director of S&U Skin Clinic, Clinical Professor of Department of Dermatology, Sunkyunkwan University, South Korea

Recent studies suggested that in addition to vascular and neural growth factors, dermal degenerative changes caused by solar radiation and increased secretion of stem cell factor by lesional dermal fibroblasts may be associated with the development of melasma. These results revealed that it might be necessary to regenerate abnormal dermis in order to get long-term clearance of melasma.

Melasma is often refractory to various treatment modalities. Different lasers have been used for the treatment of melasma, but the results were usually unsatisfactory. Previous studies reported that Q-switched ruby laser and Q-switched Nd: YAG laser (QSND) yielded disappointing results because of the postinflammatory hyper- / hypo-pigmentation due to excessive thermal damage caused by the use of high fluence.

A new modality, called "laser toning", has become popular in Korea for the treatment of melasma. This treatment method uses QSND with low fluence and it differs from traditional QSND treatment by using larger spot size (6-8 mm), low energy ($<2.0 J/cm^2$); multi passes (up to 10 passes) at each session, and frequent treatment (weekly or bi-weekly). Its efficacy for melasma has been documented in several published reports.

The speaker further discussed that "laser toning" sometimes showed side-effects such as rebound hyperpigmentation and/or mottled hypopigmentation, which were probably caused by too short a pulse width, too frequent treatments, or a relatively high fluence.

Optimal Pulse Technology™ (OPT™) treatments were introduced: the complication of post-inflammatory hyperpigmentation was markedly reduced. As a result, intense pulsed light (IPL) treatment is widely used for the treatment of pigmentary lesions including melasma and post-inflammatory hyperpigmentation in Korea.

The IPL (OPT™ with Lumenis One™) uses non-coherent, polychromatic light manipulated with cut-off filters to meet the requirements for selective photothermolysis. It effectively decreases epidermal melanin for the treatment of melasma, without directly affects the melanocytes. Treatment end-point is very faint erythema or even no erythema. The speaker further discussed the adjustments of several variables, such as cut-off filter, fluence, number of pulses, pulse duration, and delay time to get good clinical outcome.

Learning points:

Even though low fluence Q-switched Nd:YAG laser treatment ("laser toning") is effective for the treatment of melasma, complications (hyper- or hypo-pigmentation) are not uncommon. OPT™ with Lumenis One™ may be effective and safe for the treatment of melasma.