Skin laxity, erythema, telangiectasias, wrinkles and facial blemishes are the major cosmetic problems facing a practising dermatologist nowadays. Effective management of these aging processes not only significantly improves the quality of life of our patients, it will also generate additional income and revenue to our general dermatology clinic. Superficial pigmentation and vascularity are generally adequately dealt with by the intense pulse light (wavelength 560 nm to 1200 nm); superficial and deep wrinkles by the 1320 nm Nd:YAG laser and botox injection respectively, flaccid skin is still a relatively virgin field that has been receiving increasing attention in the market of aesthetic medicine in dermatology recently.

The aetiology of skin laxity is probably multi-factorial. Genetic factors may play a role especially in conditions that result in premature skin redundancy like cutis laxa. However, the majority of skin laxity is a result of photo-aging caused by excessive exposure to ultraviolet light, chronic cigarette smoking, environmental pollutions and gravitation. The prevalence of skin laxity in the population is unknown but it is almost certainly one of the commonest manifestations of photo-aging. This lack of epidemiological data may well reflect the absence of a reliable assessment tool to measure skin redundancy objectively.

In the past, skin laxity over the face is treated with surgical face lifting which has a major downtime, cost and post operative complications like infections and scar formation; the modern paradigm has shifted to non-ablative approach. The armamentaria used for combating skin laxity by the non-ablative approach are the unipolar or bipolar radiofrequency (RF) technique and the infrared light (IR) source. The skin tightening effect of RF is a result of bulk heating caused by impedance in the skin including the subcutaneous adipose tissues. Although the skin tightening effect of the unipolar RF device is well documented, use of RF has been limited by its well known but rare side effects like facial asymmetry and fat atrophy. IR has been shown to have the capability of delivering energy to heat up the upper part of the dermis known as the papillary dermis resulting in collagen contraction with minimal pain and fewer complications.

IR with a wavelength of 1320 nm to 1450nm target water as its major chromophore provides localised, evenly distributed heating of the papillary dermis causing immediate collagen contraction and long term collagen stimulation. The immediate contraction of the collagen fibrils is a result of thermal exposures of these proteins to a temperature > 50°C. On the other hand, long term collagen proliferation is a slow wound healing process secondary to IR thermal injury of the upper dermis. This slow wound healing process which involves chemotactic factors released by neutrophils, platelets and fibroblasts in the deeper part of the dermis may well explain some of the delayed skin tightening effects of the IR device. The overall dermal response to this IR heating process is related to the time of exposure to the IR light source, specific anatomy of the face and individual patient’s characteristics.

The major advantage of IR as compared to RF is that the former procedure is associated with less pain as a result of an in-built cooling system in the IR device which protects the epidermis. Up till now, there are very few post operative complications reported in using IR as compared with RF. Pre-treatment cost of IR is also much lower than the unipolar RF device since no single-use disposables are used. Other merits of IR are that the machine is easy to operate and no specifications of skin types are needed. Unfortunately, these merits of IR over RF in treating lax skin is limited by the fact that there is a relative paucity of data published on the overall effectiveness of IR and the optimal operational parameters that should be used in treating skin laxity is not properly defined in IR.

The current clinical indication of IR is to treat skin laxity in sub-mental area, jowls, abdomen, neck and forehead. In order to maximize its outcome, two distinct treatment strategies are recommended; either to start IR at the highest tolerable fluence or to use a lower fluence with a higher number of pulses in concentrated areas. There is no controlled study to compare which of these two strategies works best for which category of patients. Dermatologists may have to decide subjectively which method is to be used. Reported complications are pain especially at mandibular and maxillary areas, erythema and blistering at the treatment site. The author’s personal experience is that blistering is usually transient; often due to an uneven application of the IR device hand piece over the treatment area. Most blisters subside within 24 hours and no case of scarring has been reported.
Looking into the future, IR may work best in combination with other photo rejuvenation techniques like intense pulse light and RF. Anecdotal report suggested that by combining with the 1064 nm Nd:YAG laser, the skin tightening effect of IR may be enhanced. (Personal communication with Dr Kubota, M.D.) The effect of IR on pigmentation, acne and wrinkles is currently not known.

In summary, IR is an effective non-ablative skin tightening technique without major complications. Properly designed controlled studies should be carried out to find out the best treatment parameters with the IR device in alleviating skin laxity. This can be achieved through research collaboration between the private and public sectors.

References:

FMSHK 40th Anniversary Activities

To celebrate the FMSHK’s 40th birthday, a series of special events and functions will be held year-round in 2005, a year which marks the history of FMSHK.

Winter

The 40th Anniversary Gala Dinner
Date : 28 November 2005
Time : 7:00 p.m. President’s Reception/Cocktail
8:00 p.m. Dinner
Venue : Meeting Room 201, Hong Kong Convention and Exhibition Centre, 1 Expo Drive, Wanchai, Hong Kong
Price : HK$950.00 per person

Federation President Cup Soccer Five Tournament 2005
League matches
Date : 6 and 13 November, 2005, 4 December 2005
Time : 8:00 p.m.-11:00 p.m.
Venue : Whole Arena, Shek Kip Mei Park Sports Centre, 290 Nam Cheong Street, Shek Kip Mei, Sham Shui Po, Kowloon

Final match
Date : January 2006
Venue : A suitable sports ground in Hong Kong

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