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FC Free Communication

Aesthetic and Cosmetic dermatology, and Lasers

IPL delivered with mechanical pressure following a period of red light activation enhances efficacy of photodynamic treatment of BCCs

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INTRODUCTION:

Conventional red-light photodynamic treatment (PDT) of facial BCC's has a lower clearance rate compared to other sites. During activation, faces flush more than most other sites and so we proposed that haemoglobin (Hb) may be acting as a competing chromophore. Removing blood whilst delivering light can be achieved when the treatment area is compressed during emission with an IPL head. The issue can then become lack of oxygen to meet demands of higher fluence treatment. We propose though that the oxygen deficit can be overcome with a period of red-light activation immediately prior to the IPL emission. Heat generated during red light photodynamic activation should dissociate haemoglobin from oxygen in the hyperaemic tissue.

During the IPL emission filters can be selected to include stronger activating wavelengths in the green-yellow spectra. Increased penetration and recycling of light (upon interaction with dermal collagen) will be achieved when tissue is drained of blood. Removing blood should specifically result in increased delivery of light to the peripheral cells of BCC nodules. They are likely important tumour growth cells and lie closest to vessels.

METHODS:

Since 2018, we have regularly been treating superficial and thin nodular (< 2 mm) BCCs using a modified photodynamic treatment protocol where activation is performed using Aktelite immediately followed by IPL applied with enough mechanical pressure to blanch the lesion. Optical coherence tomography (OCT) has been used to support the clinical diagnosis of BCC, to establish tumour depth, and to verify tumour removal.

RESULTS:

In our initial series of 36 lesions (most lesions were nodular, most located on the face) there was 1 incomplete clearance at a mean 12-month follow-up.

CONCLUSION:

A modified activation protocol consisting of red-light followed by IPL delivered with mechanical pressure to remove blood enhances photodynamic treatment efficacy of BCCs.