DERMOSCOPY AND SKIN IMAGING

PHOTOAGED SKIN AND CACERIZATION FIELD: DISTINCTIVE FEATURES IN CONFOCAL MICROSCOPY AND OPTICAL COHERENCE TOMOGRAPHY

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Background: Sun skin damage is thought to be a complex biological process that is traditionally classified as photoaging and cancerization field induction. Several clinical score and instrumental devices have been applied to obtain a precise assessment of photodamage. Among them, reflectance confocal microscopy (RCM) and optical coherence tomography (OCT) have emerged as new techniques capable of assessing cytoarchitectural changes with a nearly histopathologic resolution.

Objective: We aimed to determine the microscopic skin changes occurring on the face in different photodamage groups (photoaged skin only -group A-, cancerization field only -group B-, photoaging and cancerization field -group C-) by means of RCM and OCT.

Methods: The skin of the cheek and of the forehead in 45 patients belonging to 3 distinct photodamage subtypes was analyzed by confocal microscopy and optical coherence tomography.

Results: In RCM, group A showed prominent polycyclic papillary contours, mottled pigmentation and thicker epidermis. Collagen was prevalently coarse, with an important component of curled bright structures. OCT revealed collagen in bundles, with moderately fragmented fibers. Group A was also characterized by higher photodamage scores according to Griffiths' scale and a higher cumulative sun exposure. Group B showed an irregular honeycomb pattern, with a higher percentage of huddle collagen when compared to group A. Moreover, in OCT, both epidermal thickness and collagen fragmentation were reduced, while skin vascularization was more prominent. Clinically, those patients had a fairer skin and lower levels of sun exposure. Group C showed intermediate characteristics between the two groups.

Conclusions: RCM and OCT were successfully applied to identify in vivo skin changes

occurring in aged skin at both the epidermal and the dermal level at histopathologic resolution. This offers the possibility to use the above-mentioned RCM and OCT parameters as indicators of a carcinogenetic risk, without the need of invasive diagnostic procedures.