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In Vivo Non-Invasive Evaluation of Actinic Keratoses Response to Methyl-Aminolevulinate-Photodynamic Therapy (MAL-PDT) by Reflectance Confocal Microscopy

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ABSTRACT

Photodynamic therapy (PDT) with methyl-aminolevulinate (MAL) is an approved non-invasive treatment option for actinic keratoses (AKs). In vivo reflectance confocal microscopy (RCM) is a non-invasive tool for real-time imaging of epidermis and superficial dermis in vivo that has been previously reported to facilitate the in vivo evaluation of skin lesions, including AKs. The aim of this study was to investigate the use of in vivo RCM in evaluating AKs response to MAL-PDT. For this reason a total of 10 biopsy-proven AKs were treated by MAL-PDT, according to standard PDT protocol for AKs. RCM investigation was performed before and after PDT and RCM-guided punch biopsies were taken at 3 months in all patients for histopathologic examination. At 3 months follow-up, complete clinical response was observed by clinical examination in 9 out of 10 lesions and a partial clinical response in 1 lesion. In vivo RCM detected two residual AKs in subclinical form, missed by clinical examination. Histological analysis confirmed these results. In vivo RCM may be a new alternative tool for the non-invasive diagnosis of AKs and evaluation of AKs response to non-invasive treatments, as MAL-PDT, improving the ability of dermatologists to diagnose AKs even in subclinical stage.