**ABSTRACT**

BACKGROUND: Reflectance confocal microscopy (RCM) is a non-invasive diagnostic technique with an acceptable sensitivity and specificity for actinic keratosis (AK). OBJECTIVES: We evaluated efficacy of the DL-PDT in AK patients using a new RCM atypia scoring system. METHODS: All patients with AK lesions (Grade I- II) were included in our study (2012-2015). Baseline clinical, dermoscopy and RCM evaluation were followed by DL-PDT. In the first follow up, clinical examination, dermoscopy and RCM imaging of the treated area were carried out. Atypia scoring and cell sizes measurement were used to compare before and after RCM images. RESULTS: From 40 lesions (twenty patients) with mean age of 75.5 years, complete resolution and partial response of the actinic damage was detected in 80%, and 17.5% of lesions, respectively. No cellular atypia was seen in the follow-up RCM images of 57.5% of lesions (n=23), while in 40% lesions (n=16) some minimal changes to the honeycomb pattern of the epidermis was seen in the follow-up RCM images (Atypia score= 1). Only one lesion showed minimal or no clinical response, and persistent moderate amount of atypia in RCM. Furthermore, atypia score and mean cell size decreased significantly in the follow-up DL-PDT RCM images (p< 0.001, p= 0.001, respectively). CONCLUSION: Confocal microscopy features of actinic damage at cellular level have shown to be well correlated with the results of a clinical assessment of AK lesions. This study confirms that in vivo RCM technology might be an additional technique to monitor the efficacy of DL-PDT for AK. This article is protected by copyright. All rights reserved. KEYWORDS: Actinic keratosis; Daylight photo dynamic therapy; Non-invasive follow-up; Reflectance confocal microscopy PMID:26949030