In vivo Confocal Laser Microscopy for monitoring of actinic keratosis treatment: a comparison with histopathologic assessment after treatment with topical 5% 5-fluorouracil.


**ABSTRACT**

**BACKGROUND:** Histological examination is the gold standard for actinic keratosis diagnosis; however, it is not always a feasible approach. Reflectance confocal microscopy (RCM) is a non-invasive technique that may be an alternative for monitoring actinic keratoses treatment response. Topical 5-fluorouracil is indicated for actinic keratosis multiple lesions and for field cancerization treatment. **OBJECTIVES:** To assess the RCM accuracy, sensibility and specificity for actinic keratosis, considering as a gold-standard the histopathological examination; as well as to evaluate the efficacy of 5% 5-fluorouracil treatment. **METHODS:** This is a prospective study in actinic keratosis patients between August, 2014 and November, 2015. RCM analyses were performed in one randomly selected actinic keratosis lesion of the upper limbs by two independent observers before and after 5% 5-fluorouracil treatment. At the end of treatment and with clinical bleaching of treated lesions, histological examination was performed by two pathologists. **RESULTS:** A total of 50 lesions were enrolled, and 40 lesions presented complete clinical bleaching after treatment and were included in the final analysis. Accuracy, sensibility and specificity means among observers were 83.8%, 84.6% and 83.3%, respectively. After 5-fluorouracil treatment, actinic keratosis was diagnosed in 45.0% (observer 1) and 32.5% (observer 2) of subjects according to RCM and in 32.5% of subjects according to histological examination. Considering RCM observers diagnosis, the concordance was substantial (k 0.637, p<0.001). 5-fluorouracil led to a reduction in 55.0%-67.5% of actinic keratoses according to RCM analysis. **CONCLUSION:** This study allows to validate of RCM as a non-invasive method capable of monitoring actinic keratosis therapeutic response to 5-fluorouracil, presenting efficacy comparable to histological examination. Additionally, the results suggest that 5-fluorouracil may be a satisfactory option for therapeutic control of this condition. This article is protected by copyright. All rights reserved. **KEYWORDS:** 5-fluorouracil; Actinic keratosis; Biopsy; Diagnostic; Monitoring; Reflectance confocal microscopy PMID: 29178474 DOI: 10.1111/jdv.14716