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REFLECTANCE CONFOCAL MICROSCOPY: A CRUCIAL ROLE FOR ACTINIC KERATOSIS TREATMENT MONITORING

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Conflict of Interest:

None

The article by Ishioka et al¹. indicates a very important role for reflectance confocal microscopy (RCM) as a non-invasive method that can be successfully used for monitoring actinic keratosis therapeutic response to 5-fluorouracil, with an efficacy similar to histological examination. Furthermore, the results suggest that 5-fluorouracil may be a satisfactory option for therapeutic control of this condition.

This study further supports the general idea that RCM is a pivotal tool for actinic keratosis (AK) diagnosis and treatment monitoring although some considerations have to be done. The use of RCM on AKs permits to explore a wide skin area and not only a 3 to 5 mm punch biops, to avoid tissue removal and, in case of use of the handy device, to assess both several AKs and cancerization field on surrounding skin. It is well known that the aim of the topical treatment such as 5-fluorouracil is not limited to lesion-directed therapy but indeed to the whole affected area and thus a precise morphologic analysis is mandatory to assess treatment response. RCM

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holds the great advantage of a total non-invasive and dynamic way to monitor a treated area over time that it's not possible with conventional histopathology in which removed tissue cannot be subsequently analyzed, and procedure generates uncontrolled skin changes. However, RCM definition of some parameters is subjective and not highly reproducible, such as the classification for dyskeratosis (atypical honeycomb). For this reason, probably the Authors decided to evaluate its extent and not the degree of atypia, that requires a more complex approach for classification or the generation of standards.² Computer model may be used to noninvasively evaluate keratinocyte populations as a quantitative morphometric diagnostic in skin cancer detection and evaluation of cyto-architectuarl degree of disorder, in order to provide objective and quantitative data for dyskeratosis detecton and quantification.³

On the other side, conventional histopathology has a greater cytologic resolution compared to RCM and makes easier the distinction from AKs and invasive forms even though RCM seems a promising tool for this differential diagnosis⁴. Notably, the Authors in the current study didn't perform any dermoscopic assessment, that would result in a more detailed AK classification⁵. However, RCM alone demonstrated AK clearance in 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. The excellent performance of RCM alone opens the question whether this imaging tool could be used as a standing alone instrument for treatment monitoring and not coupled with dermoscopy as it is required for skin cancer diagnosis.

Not surprisingly, RCM showed a good concordance among two evaluators underling that RCM features for AKs are reliable and easy. Larger randomized trials using RCM for treatment monitoring of AK therapies are needed to confirm the findings by Ishioka et al. and to change the current clinical workflow in the field of AK diagnosis and treatment monitoring. Image analysis for the quantification of key-parameters in RCM can help to objectivize the measurements and to consider the systematic use of non-invasive technologies in clinical trial to evaluate product efficacy.

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