Medical > In Vivo > Non-Melanoma Skin Cancer Research > Squamous Cell Carcinoma and Actinic Keratosis

**ABSTRACT**

BACKGROUND: Reflectance confocal microscopy (RCM) and high-definition optical coherence tomography (HD-OCT) allow the observation in vivo of dynamic changes in response to non-surgical treatment of actinic keratosis and field of cancerisation. OBJECTIVE: To non-invasively assess the pharmacodynamic changes induced by treatment with low dose 5-fluorouracil and 10% salicylic acid by means of RCM and high-definition OCT in field cancerization and actinic keratosis. METHODS: Twenty patients aged >50 years with diagnosis of actinic keratosis on the head and face and indication for treatment with 0.5% 5-fluorouracil and 10% salicylic acid were enrolled. An area of 25 cm² including visible type I and II AK and subclinical AK was treated once daily during 6 weeks and examination was performed with RCM and HD-OCT before treatment and 2 weeks after the end of treatment RESULTS: High-definition optical coherence tomography results at baseline of mean thickness of the stratum corneum and epidermis were in AK 10.4 (SD = 4.99) and 43.3 (SD = 24.01) μm respectively and in subclinical AK 3.7 (SD = 2.15) and 30.05 (SD = 16.85) μm. At week 8 (2 weeks after the end of treatment) measurements of stratum corneum and epidermis were significantly reduced in AK and subclinical AK for stratum corneum and epidermis. In RCM at week 8 scaling, detached corneocytes, atypical honeycomb, round nucleated cells in the spinosum granulosum layer, round vessels (dermal papillae), inflammatory cells and total AK score were significantly reduced in AK and subclinical AK. CONCLUSIONS: Evaluation of AK and subclinical AK by RCM and HD-OCT showed objective improvement after treatment with 5-fluorouracil and 10% salicylic acid. These methods allowed the study of dynamic changes in the tissue at a subclinical level. © 2015 European Academy of Dermatology and Venereology.