

## **FP0472 NON-INVASIVE EVALUATION OF SUBCLINICAL ACTINIC KERATOSES AND TREATMENT RESPONSE TO IMIQUIMOD USING REFLECTANCE CONFOCAL MICROSCOPY**

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*Actinic keratoses (AK) are the most common type of non melanoma skin cancer and have recently been defined as in situ squamous cell carcinoma. The occurrence of multiple AKs in areas of chronically sun damaged skin led to the concept of field cancerization. In areas of field cancerization the grade of keratinocyte dysplasia varies and besides clinically visible AKs, subclinical lesions may be present. It has previously been shown that topical field treatment with Imiquimod 5% cream results in high-lightening and treatment of subclinical lesions.*

*Reflectance confocal microscopy (RCM) is a non invasive imaging technique with near cellular resolution that has recently been shown to be applicable for the evaluation of AK. The aim of this study was to evaluate the presence of subclinical lesions with RCM and to monitor the treatment response of AK to Imiquimod. A total of 15 patients were enrolled in the study. For each patient a study area with clinically visible AKs was defined. Treatment with Imiquimod 5% cream was performed 3 times a week for 4 weeks, if residual disease was present 4 weeks after end of treatment a second cycle was performed. Systematic RCM imaging of the study side was performed including AKs and surrounding, clinically uninvolved skin. Afterwards the images were blinded and evaluated by two independent investigators and a score of 1 (AK) or 0 (no AK) were assigned for each skin site. The evaluation of the study sites were performed at baseline, week 2 and week 4 of Imiquimod treatment and 4 weeks after end of treatment.*

*With RCM atypical keratinocytes and architectural disarray could be identified in both AKs and surrounding, clinically uninvolved skin. Under treatment with Imiquimod inflammatory infiltrate including lymphocytes and dendritic cells, blood vessel dilatation and spongiosis could be visualized by RCM. Furthermore areas with severe architectural disarray and detached, round cells were identified in the epidermis which likely correspond to apoptotic keratinocytes. The normalization of the epidermal architecture as a result of effective treatment with Imiquimod could be visualized.*

*RCM seems to be a promising technology for the evaluation of actinic field damage including the detection of subclinical lesions. The treatment response and efficacy can easily be imaged by RCM and real-time evaluation of the same lesions enables us to visualize the mode of action of Imiquimod. However the results presented herein are of preliminary nature and further investigations are needed to assess the applicability of our findings.*

**References:** 1. Aghassi D, Anderson RR, González S. Confocal laser microscopic imaging of actinic keratoses in vivo: a preliminary report. *J Am Acad Dermatol.* 2000 Jul;43(1 Pt 1):42-8.

2. Ulrich M, Maltusch A, Rius-Diaz F, Röwert-Huber J, González S, Sterry W, Stockfleth E, Astner S. Clinical Applicability of in vivo Reflectance Confocal

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