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65 Pilot study on the sensitivity and specificity of in vivo reflectance confocal microscopy in the diagnosis of allergic contact dermatitis.

Astner S, Gonzalez E, Cheung A, Rius-Diaz F, González S.; J Am Acad Dermatol. 2005 Dec;53(6):986-92.

ABSTRACT

The validity, reproducibility, and specificity of patch-testing in the diagnosis of allergic contact dermatitis (ACD) have repeatedly been addressed. In vivo reflectance confocal microscopy (RCM) has been used for real-time evaluation of the histopathologic features of ACD. This pilot study was designed to determine the sensitivity and specificity of RCM in diagnosing ACD in reference to patch-testing. Sixteen participants were patch tested with allergens and control substances. Clinical scoring, digital photography, and RCM evaluation were performed at 72 hours, and RCM images were subjected to blinded evaluation. RCM evaluation parameters included stratum corneum (SC) disruption, parakeratosis, stratum spinosum (SS) and stratum granulosum (SG) spongiosis, and exocytosis. Overall, there was high specificity for all RCM features, ranging from 95.8% to 100%. Sensitivity ranged from 51.9% to 96.3%. Significant parameters with high sensitivity and specificity included spongiosis and exocytosis at the level of SS. Logistic regression analysis was performed on significant variables; P values were determined by chi2 analysis. RCM is a promising noninvasive technology for the evaluation of ACD. SC changes are not helpful in the diagnosis of ACD, although the presence of SG spongiosis and SS spongiosis shows high sensitivity in diagnosing ACD. Larger sensitivity and specificity studies are needed and the identification of ACD has to be based on a defined diagnostic algorithm. A limitation of this study is the small sample size; larger sensitivity and specificity studies are needed to confirm these findings. In addition, individual allergens have to be subjected to further evaluations in order to demonstrate the applicability of our findings for other contact allergens. In that regard, RCM may be considered as an adjunctive tool, rather than a substitute, to clinical evaluation.