ABSTRACT

BACKGROUND: Clinical differentiation between actinic keratosis (AK), squamous cell carcinoma (SCC) in situ, and invasive SCC and its variants may be difficult. Reflectance confocal microscopy (RCM) is a non-invasive technique for in vivo skin imaging.

OBJECTIVES: To explicate the diagnostic and monitoring use of RCM within the spectrum of AK and SCC, and evaluate the accuracy of RCM for these diagnoses relative to histopathology.

MATERIALS & METHODS: A systematic literature search was performed in PubMed, EMBASE, the Cochrane Library, and Web of Science databases. The quality was assessed using the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) checklist.

RESULTS: Twenty-five eligible studies were included. Different diagnostic RCM features have been described for AK, actinic cheilitis (AC), erythroplasia of Queyrat, Bowen disease, invasive SCC, and keratoacanthoma (KA). The overall range of sensitivity and specificity of RCM for the diagnosis of SCC, AK, SCC in situ, and KA was 79-100% and 78-100%, respectively.

CONCLUSION: The current literature describes the use of RCM for diagnosing AK, AC, erythroplasia of Queyrat, Bowen disease, invasive SCC, and KA, as well as for monitoring treatments of AK, with good accuracy. Unfortunately, studies with high methodological quality are lacking. Pre-treatment of hyperkeratotic lesions and uniform definitions of RCM features are required to simplify the differentiation between AKs, SCC in situ, and SCC and its variants in clinical practice.

KEYWORDS: Bowen disease; actinic keratosis; keratoacanthoma; reflectance confocal microscopy; squamous cell carcinoma

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