

Wound healing assessment using digital photography: a review

ABSTRACT

Digital photography as a non-invasive, simple, objective, reproducible, and practical imaging modality has been investigated for the wound healing assessment over the last three decades, and now has been widely used in clinical daily routine. Advances in the field of image analysis and computational intelligence techniques along with the improvements in digital camera instrumentation, expand the applications of standardized digital photography in diagnostic dermatology such as evaluation of tumours, erythema, and ulcers. A series of digital images taken at regular intervals carries the most informative wound healing indexes, color and dimension, that may help clinicians to evaluate the effectiveness of a particular treatment regimen, to relieve patient discomfort, to globally assess the healing kinetics, and to quantitatively compare different therapies; however, the extent of underlying tissue damage cannot be fully detected. This paper is an introductory review of the important investigations proposed by researchers in the context of clinical wound assessment. The principles of wound assessment using digital photography were shortly described, followed by review of the related literature in four main domains: wound tissue segmentation, automated wound area measurement, wound three dimensional (3D) analysis and volumetric measurement, and monitoring and evaluation of wound tissue changes during healing.

Keyword: Wound assessment; Digital photography; Image analysis; Wound healing