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Assessing Wound Area Progression Based on Length by Width: Direct Wound vs. Digital Image Measurements

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Purpose

Methods to assess and document treatment-related changes in wound area vary among clinics. One widely used approach measures maximum length (L) and maximum width (W) perpendicular to length and uses the LW product as a surrogate for wound surface area. Since digital photography is increasingly being used for documentation purposes we sought to determine how well L and W could be estimated from such photos and determine the adequacy of LW to estimate progressive treatment-related wound area changes.

Objectives

At the conclusion of this presentation the participant will be able to:

- 1. Describe the difference between direct and image based wound measurement.
- 2. Describe the adequacy of wound length by width to represent wound area changes with treatment
- 3. Describe the adequacy of length by width measures to represent actual wound area.

Abstract

Purpose: Methods to assess and document treatment-related changes in wound area vary among clinics. One widely used approach measures maximum length (L) and maximum width (W) perpendicular to length and uses the LW product as a surrogate for wound surface area. Since digital photography is increasingly being used for documentation purposes we sought to determine how well L and W could be estimated from such photos and determine the adequacy of LW to estimate progressive treatment-related wound area changes. Methods: Ten consecutive consenting patients referred for treatment of leg wounds were studied. Patients received treatment appropriate to their condition. Wounds were digitally photographed and L and W measured on the wound at each clinic visit for durations of 8 to 17 weeks. An investigator, "blinded" to the directly measured L and W values, determined L, W, LW and the wound's true area (Aw) from the digital images via specialized wound area professional software (www.clinsoft.org). Initial values of Aw ranged from 4.6 - 30.4 cm2. Results: (1) LW values obtained from digital images were insignificantly (p>0.05) different from those determined from direct wound measurements; correlations ranged from 0.96 to 0.99. (2) Progressive changes in LW (direct or digitally) matched the pattern and trend of true wound area changes over time. (3) LW values without correction greatly overestimated true wound areas. Conclusions: Simple L by W measurements, made on the wound or its digital image, adequately estimate the pattern of treatment-related wound area changes but do not accurately determine wound areas.

References