

Quantitative evaluation of elderly skin based on digital image analysis

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Abstract	<p>a:5:{i:0;s:251:"Background: The evaluation of the skin state when it is healthy at the time of examination, but predisposed to disease, is based solely on the subjective assessment of clinicians. This assessment may vary from moment to moment and from rater to rater.";i:1;s:384:"Purpose: We focused on skin texture and aimed to develop a new method to evaluate skin integrity of the elderly using a digital skin image, by verifying the reliability of the clinical evaluation of elderly skin image by specialists to create a 'gold standard,' and by analyzing a digital skin image to identify the indices that explain the skin condition as evaluated by specialists.";i:2;s:1034:"Methods: A total of 208 skin images were collected from 34 subjects. And then we processed and analyzed images. Modified Kobayashi's method and texture analysis method were used in image analysis. Kobayashi's method included the process of density transformation, cross binarization, short straight line matching and extraction of main sulcus, and calculation of each index. Texture analysis was performed on cross-binarized images for quantification of uniformity. On the other hand, skin textures in images were scored by six plastic surgeons, using a 10-point Likert scale, where 1 represented 'very bad regularity' and 10 represented 'very good regularity.' The inter-rater reliability was verified by means of the intraclass correlation coefficients (ICC). Finally, stepwise multiple regression analysis was used to extract useful indices; where the clinical evaluation of the physicians (gold standard) was considered to be a dependent variable, and indices obtained from digital skin image analysis to be independent variables.";i:3;s:371:"Results: The ICC of raters was 0.92 (95% confidence interval; 0.91-0.94) when including all raters, therefore the score of all raters was used. As a result of stepwise multiple regression, the index of interval (L), thickness (T-ave), energy 0 degrees, and entropy 45 degrees independently explained the clinician evaluation. R-2 in multiple regression equation was 0.59.";i:4;s:287:"Conclusions: It is shown that quantitative evaluation using skin images and their analysis is one method of determining skin integrity in the elderly. The indices to explain the clinical evaluation of specialists were defined and these indices were obtained simply by using a skin image.";} </p>
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