



Asian Hyperbaric and Diving Medical Association
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FREE PAPER PRESENTATION
ABSTRACTS

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COMPARISON OF THREE DIFFERENT METHODS FOR MEASURING WOUND SURFACE AREA; A PRELIMINARY REPORT

Nadir Arican, Kutay Kulahci, Akin Savas Toklu

Introduction: Chronic wounds are challenging problems both for medical practitioners and patients. There are tremendous modalities for the treatment of problem wounds including hyperbaric oxygen therapy. It is important to measure wound size to evaluate the effect of the treatment modality chosen. There are several methods for planimetric measure of wound sizes. The method used for evaluation of the wound size should be practical and easy to use. In this study we compared three different methods to measure the wound area on the lower limbs of patients who were sent for hyperbaric oxygen treatment.

Methodology: We performed planimetric wound area measurement on 100 digital wound photographs that included a 9 cm² reference square, by using programs of Image J, Image Proplus and counting the squares on grid on the wound image. Microsoft PowerPoint program was used for squares counting on grid method. The same images in which the wound edges traced by yellow line were used for all of the three methods. The area of wound surface was calculated by using the reference area of 9 cm² on the images.

Results: The mean wound surface areas measured by Image J, Image Proplus and counting square on grid were 7,883 cm² \pm 10,777 (min:0,0074 – max: 57,919), 7,886 cm² \pm 10,735, (min:0,0082 – max: 57,635) and 7,784 cm² \pm 10,654(min:0,0065 – max: 56,037) respectively. There was significant correlation when we compared the wound areas measured by each method ($p < 0.0001$). The time spent for counting square on grids was too much and not comparable with the other methods.

Conclusion: The quicker methods for measuring the wound surface area were using the software of Image J and Image Proplus. The former one is an open source software and can be used effectively without any cost. The method of counting square on grids is time consuming and should not be preferred.