6th World Congress on TRAUMA, SHOCK, INFLAMMATION AND SEPSIS – Pathophysiology, Immune Consequences and Therapy
March 2nd – March 6th, 2004, LMU Munich, Klinikum Grosshadern

NEW METHOD FOR MEASUREMENT OF ISCHEMIA IN WOUNDS - A PILOT STUDY

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Introduction: Ischemic wounds are clinically relevant and the probability for healing is hard to estimate. There is s new method to evaluate the microcirculation in and outside the wound. Within seconds hemoglobin, oxygen saturation, blood flow and blood flow velocity can be measured (optical technique) in different depth of the tissue (O2C®, LEA Medizintechnik, Giessen, Germany).

Methods: In this pilot study we investigated reproducibility of the new measurement. On healthy volunteers the probe was applied on the dorsum of the foot and on the upper arm on two different days. Measurement (n=34) was performed on the laying patient, the probe was fixed with a Opsite® foil in order to guarantee constant pressure to the skin. The leg was covered with a blanked to maintain a constant temperature. On patients with chronic non healing wounds (n=12) the probe was applied at the wound center and at the dorsum of the foot as well as on the upper arm.

Results: There was a very good reproducibility of the measurements on two different days ($p<0.05$) with a very low standard deviation. Ischemic wounds demonstrated lower oxygen saturation, blood flow and blood flow velocity.

Discussion: The measurement is practicable and easy to perform. There is a good reproducibility and ischemia is well documented with low blood flow and velocity. The clinical relevance of the measurement has still to be proved, and we should evaluate, whether these values may correlate with the chance for healing.