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Title: TRANSCUTANEOUS OXYGEN MEASUREMENTS IN NON-HEALING WOUNDS

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Abstract: Transcutaneous oxygen (tcO2) measurements were obtained from a chart review of 28 patients undergoing a total of 70 hyperbaric oxygen treatments for non-healing wounds or graft preparation. To assess if the initial and/or final tcO2 levels would predict the outcome of the non-healing wound, two extremes of the tcO2 distribution were compared and the measurements categorized into two groups: While breathing air at 1 atm abs group I had tcO2 values of <=4 mmHg, whereas group II had tcO2 values of >= 40 mmHg. Measurements were obtained by placement of the tcO2 probe near the

wound or graft site. Values were acquired using room air at 1 atm abs and then after 100% O2 at 2 atm abs for 45 minutes. A comparison of the final tcO2 values was made using the Wilcoxon rank sum test. Wounds were followed and healing was then evaluated as either satisfactory or unsatisfactory. Treatments associated with initial tcO2 values <= 4 mmHg were noted to reach significantly lower final tcO2 values, at pressure, than those with an initial tcO2 >= 40 mmHg (P < .001, see Table). [table] Initial tcO2 (mmHg) room air at 1 atm abs, Number of tcO2 measurements, Avg. final tcO2 (mmHg)* 100% O2 at 2 atm abs, Wound outcome; <= 4, 9, 546, 2 failed, 6 successful;>= 40, 11, 1,118, 0 Failed, 11 successful [end table]Occurrence of one or more low initial tcO2 values, taken while breathing air at 1 atm abs pressure, did not appear predictive of wound outcome. The data suggest that hyperbaric oxygen therapy, for non-healing wounds or for graft preparation, may be beneficial despite low wound tcO2 values observed during normobaric room air conditions.

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