Medical Studies/Resources

Wound Care & Healing

Wood Z. "Hyperbaric oxygen in the management of chronic wounds." Nurse 2002 Sep;11(16 Suppl):S16-24

Abstract: This article reviews the role that hyperbaric oxygen therapy (HBOT) plays in the field of wound healing. HBOT, although not seen as a common method of wound management in the UK, can perhaps offer another avenue to managing recalcitrant wounds. In order for the healing of chronic wounds to progress, the practitioner must address all the factors impeding the healing process, one of which is oxygenation. HBOT is thought to improve many aspects of poor healing by supplying high levels of oxygen at normal atmospheric pressure. It has been suggested that increasing the availability of oxygen does not necessarily stimulate the healing process, but that perhaps the pressure at which the oxygen is delivered is the responsible stimulus.

Boykin, Joseph V. "How hyperbaric oxygen helps heal chronic wounds." Nurse. June 2002, **Vol. 32 Issue 6, p24**.

Abstract: Examines the effectiveness hyperbaric oxygen therapy for the treatment of chronic wounds. Ability to accelerate granulation tissue formation and wound closure; Increase in the dissolved fraction of oxygen in plasma; Stimulation of neovascularization necessary to wound healing.

Fife, Caroline E.; Buyukcakir, Cem; Otto, Gordon H.; Sheffield, Paul J.; Warriner, Robert A.; Love, Tommy L.; Mader, Jon. "The predictive value of transcutaneous oxygen tension measurement in diabetic lower extremity ulcers treated with hyperbaric oxygen therapy: a retrospective analysis of 1144 patients." Wound Repair & Regeneration. July 2002, Vol. 10 Issue 4, p 198-207.

Abstract: The objective of this retrospective analysis was to determine the reliability of transcutaneous oxygen tension measurement (TcPO[sub 2]) in predicting outcomes of diabetics who underwent hyperbaric oxygen therapy for lower extremity wounds. Six hyperbaric facilities provided TcPO[sub 2] data under several possible conditions: breathing air, breathing oxygen at sea level, and breathing oxygen in the chamber. Overall, 75.6% of the patients improved after hyperbaric oxygen therapy. Baseline sea-level air TcPO[sub 2] identified the degree of tissue hypoxia but had little statistical relationship with outcome prediction because some patients healed after hyperbaric oxygen therapy despite very low prehyperbaric TcPO[sub 2] values. Breathing oxygen at sea level was unreliable for predicting failure, but 68% reliable for predicting success after hyperbaric oxygen therapy. TcPO[sub 2] measured in chamber provides the best single discriminator between success and failure of hyperbaric oxygen therapy using a cutoff score of 200 mmHg. The reliability of in-chamber TcPO[sub 2] as an isolated measure was 74% with a positive predictive value of 58%. Better results can be obtained by combining information about sea-level air and in-chamber oxygen. A sea-level air TcPO[sub 2] < 15 mmHg combined with an in-chamber TcPO[sub 2] < 400 mmHg predicts failure of hyperbaric oxygen therapy with a reliability of 75.8% and a positive predictive value of 73.3%.