The use of Transdermal Continuous Oxygen Therapy to Accelerate Wound Healing

Author:
Howard Myles Kimmel, D.P.M., M.B.A., F.A.C.F.A.S.
Residency Director, PM&S 36, Louis Stokes Cleveland Department Veterans Affairs Medical Center, Cleveland, Ohio
Senior Clinical Instructor, Department of Surgery, Case Western Reserve University School of Medicine, Cleveland, Ohio

Introduction
It is well known the importance of oxygen in wound healing. It impacts collagen production and development through its effects on enzymes. It has a major role for angiogenesis, the production of granulation tissue, as well as resistance to infection. Transdermal Continuous Oxygen Therapy (TCOT) is another delivery system which provides a flow of continuous pure oxygen directly to the wound bed. There are several advantages over hyperbaric oxygen, including decreased cost, decreased complications and a more efficient delivery of oxygen to the wound surface.

Methods
We evaluated 5 published articles on Transdermal Continuous Oxygen Therapy. 4 of the 5 articles were used. The article that was not used, did not have the patients listed individually. A total of 13 patients were identified. These patients had ulcers due to either pressure, arterial or venous insufficiency, or were post-operative wound dehiscences.

Results
The average patient age was 59 years old, with the pre-treatment ulcer area of 22.3 cm². Post-treatment area was 3 cm² with an average length of treatment being 11 weeks. Wound area reduction average was 85%.

Conclusion
The beneficial effects of oxygen therapy are numerous. From decreasing bacterial load to stimulating growth factors. Utilization of Transdermal Continuous Oxygen Therapy as the primary therapy for wound healing caused an average decrease in size of 85%. Further studies need to be performed to show the true benefits of this device.

References:
- Lowell et. Al: Transdermal Continuous Oxygen Therapy as an Adjunct for Treatment for Recalcitrant and Painful Wounds, The Foot and Ankle Online Journal.2009; 2 (9);4