

OASIS Alert

Wound Care TOPICAL O2 HELPS HARD-TO-HEAL WOUNDS, STUDY SHOWS

A new study on the topical application of pure oxygen might let home care patients suffering from chronic or hard-to-heal wounds breathe a sigh of relief.

A team of scientists from Ohio State University recently published results of a nine-month study that used topical oxygen to treat 32 patients with a total of 58 wounds. The wound types included post-surgical wounds, diabetes-related ulcers, bedsores and acute trauma-induced wounds. The research and results of the study appear in the January 2003 issue of the journal *Pathophysiology*.

Researchers applied the topical oxygen via a single-use, disposable, gas-impermeable boot or bag secured around the affected limb or wound. The oxygen is administered to the wound for 90 minutes a day for four consecutive days, followed by a three-day rest period. This is intended to aid healing by correcting the hypoxia at the wound site.

The study found more than two-thirds of these complex wounds healed completely with oxygen alone. Five wounds that received preoperative oxygen therapy healed following surgery, and altogether, three-quarters of the wounds healed with topical oxygen treatment. The study concludes that the "topical oxygen had no detrimental effects on wounds and showed beneficial indications in promoting wound healing."

HHAs Have Much To Gain

One of the study's goals was to identify an alternative to hyperbaric oxygen chambers that could "bring the benefits of oxygen therapy to more people without the potential risks" of hyperbaric treatment, states Dr. Gayle Gordillo, an assistant professor of plastic surgery at OSU and one of the study's co-authors.

With hyperbaric treatment, "the whole person is sent into a tube and the patient is exposed to pure oxygen at an elevated pressure," says Dr. Chandan Sen, director of OSU's Wound Healing Research program and the study's lead author. Patients experience breathing discomfort and expose themselves to the potential risk of systemic oxygen toxicity, he explains.

And hyperbaric chambers simply can't compete with topical therapy from a convenience standpoint, says Gordillo. "If you're going to be treated with hyperbaric oxygen, you've got to drive every day, five days a week, for about a month" to receive your treatments, and some patients may not have the resources or ability to commute back and forth to a distant facility, she states.

Conversely, topical oxygen therapy is ideal for the home health setting because the FDA-approved plastic bag that surrounds the wound "is primarily a home health device," which is both inexpensive and easy to use, Gordillo tells Eli. Approximately 90 percent of patients currently receiving topical oxygen treatment are doing so at home, she reports.

While the low cost and portability of this therapy make it an attractive option for home health agencies, not everyone is quick to embrace it.

Margaret Falconio-West, a clinical director with Mundelein, IL-based Medline Industries, believes many nurses remain skeptical of topical oxygen because they simply haven't seen enough data or studies to support its wound healing claims. She doubts she would turn to topical oxygen treatment as a first-choice modality, but she might consider employing it after several other treatment methods had failed.

Sen, however, maintains that topical oxygen treatment should be viewed "more as an adjunct than as a single therapy."

If you use a single modality without increasing oxygen delivery to the wound area tissue and correcting the hypoxia, the wound will not heal, he insists. Further studies are planned.