Hyperbaric Oxygen Therapy

For Radiation Cystitis

Clinical Benefits
Mechanisms of Action
Journal References
Indications
Hyperbaric Oxygen Therapy (HBOT) is an adjunctive therapy used to treat various conditions including radiation cystitis. During treatment, patients breathe 100 percent oxygen while inside a treatment chamber that has been pressurized. This results in hyperoxygenation of blood and tissues which promotes angiogenesis, collagen synthesis, epithelization and improves leukocyte function.

The course of a hyperbaric treatment typically lasts six–eight weeks (Monday–Friday) depending on the severity of the condition, as well as the patient’s individualized progress. Patients can expect each treatment to last approximately two hours. Near the 20th treatment, patients are evaluated to review their progress and consider the need for additional treatments.

During treatment, patients can expect the following to ensure a pleasant experience:

- Patients may sleep, listen to the radio, or watch television or movies
- A hyperbaric technician is available chamber-side at all times
- Patients will be evaluated by a hyperbaric-trained physician prior to and following all treatments.

RADIATION CYSTITIS INDICATIONS
Patients with a history of pelvic irradiation and secondary radiation cystitis may benefit from HBOT.

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Radiated tissue demonstrates shallow oxygen gradients within the radiated field. Low oxygen gradients prevent revascularization. HBOT creates steep oxygen gradients which stimulates vascular endothelial growth factor (VEGF) release and induces the appearance of platelet-derived growth factor (PDGF) receptors. This results in the promotion of capillary budding and collagen synthesis.

PRIOR TO HBOT:
Low oxygen gradient in tissue surrounding at irradiated site.

DURING HBOT:
Raises oxygen gradient in tissue, promoting angiogenesis in wound.

AFTER 20 – 30 HBOT:
Oxygen benefits continue neovascularization, healing wound.

*Graphic source: Hyperbaric Medicine Practice. Eric P. Kindwall, M.D. and Harry T. Whelan, M.D. Best Publishing Company*

**JOURNAL ARTICLES**


FURTHER INDICATIONS FOR HYPERBARIC OXYGEN THERAPY

- diabetic wounds
- soft tissue radionecrosis
- radiation cystitis
- chronic refractory osteomyelitis
- recipient site preparation for failed graft or flap
- preservation of compromised skin grafts and flaps
  - osteoradionecrosis (treat and prevent)
- progressive necrotizing infection (necrotizing fasciitis, gas gangrene)
- acute traumatic ischemic injury

Hyperbaric Oxygen Therapy at Abbott Northwestern Hospital follows the accepted indications, standards and procedures recommended by the Undersea and Hyperbaric Medicine Society.