HYOX

HYPERBARIC MEDICINE HEALS.

HYPERBARIC OXYGEN THERAPY FOR FAMILY MEDICINE

HyOx treats the following approved and covered complications:

- **Chronic, non-healing wounds, including diabetic lower extremity wounds**
  - ***Referral Protocol:*** In diabetic lower extremity wounds (Wagner Grade III), after 30 days of failed antibiotic and traditional wound care in a wound that has penetrated deep reaching tendon, bone or joint capsule with abscess, osteomyelitis or tendonitis extending to those structures (best if referred in tandem with podiatric medicine). When wounds are hypoxic (wound PO_2 of ≤ 40 mmHg). HyOx can measure oxygen availability around the wound site through transcutaneous oxygen tension measurements performed at initial consult.
- **Necrotizing soft tissue and bone infections (necrotizing fasciitis, gas gangrene)**
  - ***Referral Protocol:*** Immediately, in the acute phase, after a wound culture, MRI or bone biopsy show necrotizing bone or soft tissue infection – when anatomic levels of involvement of skin, superficial or deep fascia and muscle involvement can be assessed by biopsy, MRI and deep tissue cultures
- **Chronic refractory osteomyelitis**
  - ***Referral Protocol:*** When osteomyelitis fails to respond to definitive surgical debridement and four to six weeks of antibiotic therapy
- **Delayed effects of radiation therapy (soft tissue radionecrosis or osteoradionecrosis)**
  - ***Referral Protocol:*** Immediately, upon symptom manifestation
- **Central retinal artery occlusion (CRAO)**
  - ***Referral Protocol:*** Immediately, preferably within eight hours to 24 hours to achieve an optimal outcome, but refer up to two weeks of onset for a chance to regain some visual acuity (light/dark)
- **Carbon monoxide poisoning**
  - ***Referral Protocol:*** Immediately, upon exposure to carbon monoxide to flush the toxin out of the bloodstream or as soon as neurological symptoms manifest

Benefits of Hyperbaric Oxygen Therapy:

- Increases partial pressure of oxygen in the body's tissues by supersaturating the plasma with oxygen which diffuses to the hypoxic area of the body
- Optimizes wound care and antibiotic therapy to accelerate healing in hypoxic wounds primarily in Wagner Grade III or worse diabetic foot ulcers that have failed to improve after 30 days, and exhibit persistent infection, malperfusion and hypoxia, cellular failure and unrelieved pressure or recurrent trauma (**1**)
- Promotes wound healing through angiogenesis, fibroblast replication, collagen deposition, resistance to infection, and intracellular leukocyte bacterial killing (**2**) (**3**)
- Helps reduce the number of limb amputations (**4**) (**5**)
- Heals effects of radiation injury – vascular obliteration and stromal fibrosis – by stimulating angiogenesis (inducing neovascularization in hypoxic tissues) (**6**)
- Helps resolve infections combined with antibiotic and surgical debridement, by augmenting the transport of certain antibiotics across bacterial cell walls (antibiotic transport does not occur if oxygen tension levels are below 20 to 30 mmHg) (**7**)

REFERENCES:

(**1**) Mustoe T. Understanding chronic wounds: a unifying hypothesis on their pathogenesis and implications for therapy. Am J Surg 2004 187 (5Suppl): 65-70S.

(**2**) Hopf HW, et al. Hyperoxia and angiogenesis. Wound Rep Regen 2005; 13 (6): 558-564.

(**3**) Hunt TK. The physiology of wound healing. Ann Emerg Med 19887; 17: 1265-1273.

(**4**) Hyperbaric Oxygen Therapy in Patients with Chronic Wounds. Am Fam Physician. 2005; 1: 71(9): 1775-1776.

(**5**) Roeckl-Wiedmann I, et al. Systematic review of hyperbaric oxygen in the management of chronic wounds. Br J Surg. January 2005; 92:24–32.

(**6**) Berkey FJ. Managing the Adverse Effects of Radiation Therapy. Am Fam Physician. August 15, 2010; Vol 82 No 4.

(**7**) Verklin RM, Jr, GL Mandell. Alteration of effectiveness of antibiotics by anaerobiosis. J Lab Clin Med, 1977. 89 (1) 65-71.