HYOX

HYPERBARIC MEDICINE HEALS.

HYPERBARIC OXYGEN THERAPY FOR COLORECTAL SURGERY

HyOx treats the following approved and covered conditions:

- **Delayed radiation tissue injuries:**
  - Radiation cystitis and proctitis
  - Soft tissue radionecrosis (STRN)
  - Osteoradionecrosis (ORN)
  - ***Referral Protocol:***
    - Immediately, upon symptom manifestation of the delayed effects of radiation injuries including persistent edema, bleeding and pain affecting quality of life
    - Pre- and post-operatively in a previously radiated area
- **Necrotizing soft tissue infections:**
  - Necrotizing fasciitis (including Fournier's Gangrene)
  - Peritonitis
  - Gas gangrene
  - Perianal or perirectal infection (abscesses often cited as a source of Fournier's Gangrene)
  - ***Referral Protocol:***
    - In cases of colorectal infections in a non-radiated area, refer after post-surgical debridement and a four to six week course of antibiotics (along with continued debridement and procedures)
    - In cases of progressive necrotizing infections, refer immediately in the acute phase, after a wound culture, MRI or bone biopsy
- **Chronic, non-healing wounds and compromised flaps in a previously radiated area such as the anorectal region (pre- and post-operative / colon resection)**
  - ***Referral Protocol:*** Immediately upon recognition and when post-surgical site shows signs of dehiscence, necrosis, blistering, erythema, and/or infection
- **Colorectal anastomosis ischemia post colorectal surgery**
  - ***Referral Protocol:*** At the onset of anastomotic leak and segmental ischemia to play a central role in inflammation and wound healing

Benefits of Hyperbaric Oxygen Therapy

- Increases anastomotic healing of both normal and ischemic colonic anastomosis and reverses ischemic damage through adequate tissue oxygenation (**1**) (**2**)
- Reduces the amount of leukocyte function occurring within a hypoxic and infected, irradiated area and limits the spread of infection (**3**) and fecal diversion from a colostomy or ileostomy site
- Speeds the recovery of soft tissues and bone affected by radiation therapy's fibro-atrophic effect (**4**) when treating pelvic malignancies including radiation proctitis and non-healing wounds in the anorectal region by promoting angiogenesis in hypoxic tissue involving compromised blood flow to the rectal wall (**5**)
- Helps resolve pain, hematuria and inflammation in radiation cystitis patients (**6**)
- Restores immune mechanism that are dysfunctional due to hypoxia which affects neutrophilic killing of organisms as phagocytosis becomes inefficient
- Assists certain antibiotics to work more effectively in soft tissue and bone infections by augmenting their transport across bacterial cell walls - an oxygen - dependent function (**7**)

REFERENCES:

(**1**) Erenoglu C, Uluutku H, Emeksiz S, Akin ML, Foley E, Celenk T. Effect of hyperbaric oxygen on anastomoses created under the influence of 5-FU. Department of General Surgery, GATA Haydarpasa Training Hospital, Istanbul, Turkey and Department of Surgery, University of Virginia Health Sciences Center, Charlottesville, VA, USA.

(**2**) Sanzi M, Aiolfi A, Marin JN, Darawsh AEH, Bona D. Hyperbaric oxygen treatment for late low colorectal anastomosis ischaemia: Case report. Diving Hyperb Med. 2021 Mar 31;51(1):116-118. doi: 10.28920/dhm51.1.116-118. PMID: 33761553; PMCID: PMC8313769.

(**3**) Feldmeir JJ, Hampson NB. A systematic review of the literature reporting the application of hyperbaric oxygen prevention and treatment of delayed radiation injuries: an evidence-based approach of the literature. Undersea and Hyperbaric Medicine, vol. 29, no. 1, pp 4-30, 2002.

(**4**) Marx RE, EHler WJ, Tayapongsak P, Pierce LW. Relationship of oxygen dose to angiogenesis induction in irradiated tissue. Am J Surg 1990; 160: 519-524.

(**5**) Bem, J, Bem S, Singh A. Use of hyperbaric oxygen chamber in the management of radiation-related complications of the anorectal region: report of two cases and review of the literature. Division of Colorectal Surgery, Buffalo General Hospital, New York. Dis Colon Rectum. 2000 Oct; 43 (10): 1435-8.

(**6**) Corman JM, McClure D., Pritchett R, Kozlowski P, Hampson NB. Treatment of radiation induced hemorrhagic cystitis with hyperbaric oxygen. J Urol 2003; 160: 2200-2.

(**7**) Mader JT, et al. Hyperbaric oxygen as adjunctive therapy for osteomyelitis. Infect Dis Clin North Am, 1990. 4(3): 433-40.