P-135 Hyperbaric Oxygen Therapy for the Treatment of Inflammatory Bowel Disease: A Systematic Review

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Abstract

BACKGROUND:

Hyperbaric oxygen therapy (HBOT) provides 100% oxygen under pressure, which increases tissue oxygen levels, relieves hypoxia, and improves wound healing. Several authors have demonstrated improved disease activity when utilizing HBOT for refractory perineal Crohn's disease. The safety and overall impact of HBOT in inflammatory bowel disease (IBD) however is unknown. We systematically reviewed the literature to quantify the safety and efficacy of HBOT for Crohn's disease (CD) and ulcerative colitis (UC).

METHODS:

MEDLINE, EMBASE, Cochrane Collaboration, and Web of Knowledge were searched. No study design or language restrictions were applied. We followed the PRISMA standards for systematic review. Our primary outcome was to quantify the rate of response to HBOT. Patients were considered responsive if they had objective evidence of improving disease control or were noted to be responsive by the primary investigator(s). Sub-analyses were performed for perineal CD and UC. We followed the AGA classification of fistulas (simple or complex). Our secondary outcome was to quantify the risk of serious and non-serious adverse events. Risks were calculated based on total number of events during total hyperbaric sessions. Adverse events were categorized as serious if they were categorized as serious by the original investigator(s) or resulted in discontinuation of therapy, hospitalization, or death. Pneumothorax and oxygen toxicity seizures were categorized as serious irrespective of the outcome.

RESULTS:

Of the 294 citations identified, 14 were included. A total of 39 UC (40% male, mean age 40 yrs) and 44 CD patients (27% male, mean age 37 yrs) received 2,039 HBOT treatments (mean 34, range 5–74). The majority of patients were pressurized to 2.4 ATA for 90–120 minutes once daily. Forty-two patients had perineal disease of which 21 (50%) had fistulas. The majority of fistulas were complex (91%) and locations included: entero-cutaneous (n = 8), entero-vaginal (n = 7), peri-anal (n = 3), intersphinteric (n = 2), and entero-enteric (n = 1). UC flares were categorized as: mild (n = 10), moderate (n = 19) or severe (n = 9) and HBOT was attempted in one UC patient for toxic megacolon. The overall response rate to HBOT was 89%. Eighty percent of the patients with CD had a response. Of the 42 patients with perineal CD, 18 (43%) had complete healing and 17 (41%) had partial healing of lesions at the end of therapy. All (100%) of the UC patients had a response. The patient with toxic megacolon underwent 27 sessions with improvement in disease control and avoidance of colectomy. There were a total of 7 adverse events (3.4/1,000 treatments), 4 of which were serious (2/1,000 treatments). Adverse events included: bilateral ear drum perforations (n = 1), psychological intolerance (n = 5), and temporary blurred vision (n = 1). There were no reported episodes of pneumothorax, seizure, bowel perforation, or other serious adverse events.

CONCLUSIONS:

HBOT is a safe and well tolerated treatment option for IBD. Greater than 80% of treated patients appear to respond to therapy and hyperbaric oxygen therapy appears to be effective for both perineal CD and UC. Further prospective and randomized studies are needed to determine the efficacy of HBOT in IBD and identify the potential mechanisms underlying this benefit.