



Potential side effects from HBOT

Generally, any potential side effects from HBOT are minimal and short lived. Some patients notice a fullness in their ears or a "snap, crackle, pop" sound. Rarely, some individuals notice more abdominal gas or belching afterward. In both cases, the effects are temporary.

Ear or sinus problems can result from the changing pressures during an HBOT dive, similar to what is experienced when flying in an airplane. During the dive, if the VOP has trouble adjusting to the changing pressure (i.e., equalizing their ears), the WOW chamber operator will simply hold the pressure steady until the VOP can equalize and continue the dive. All WOW dive protocols are designed to minimize problems with equalization.

Very rarely, some VOPs may notice a slight change in their vision, which usually dissipates quickly after the dive protocol is completed.

Diabetics may experience a change in blood sugars (see NIH contraindications below).

Contraindications (per the NIH, updated in December, 2020)

The one absolute contraindication to hyperbaric oxygen treatment is a patient with an untreated pneumothorax (collapsed lung). If a patient receives pneumothorax treatment, the risk-benefit ratio would need evaluation before placing the patient in the chamber based on their indication. During pneumothorax management, a chest tube with the Heimlich valve open before initiation of treatment would be an acceptable approach for pre-chamber management in an emergency clinical situation.

Relative contraindications to evaluate before treatment include, but are not limited to, the following:

- Uncontrolled hypertension (blood pressure can increase during HBOT treatment)
- Diabetes mellitus with glucose levels greater than 300 or less than 100
- Congestive heart failure with ejection fraction less than 35% (hyperbaric can exacerbate congestive heart failure and/or flash pulmonary edema)
- Claustrophobia/confinement anxiety
- Congenital spherocytosis, a form of anemia (hyperbaric oxygen can cause severe hemolysis)
- Current upper respiratory infection--may affect a VOP's ability to equalize on the descent, or risk of reverse sinus block on the ascent, both of which can lead to barotrauma

- Fever (can lower the seizure threshold during treatment)
- Chronic sinus condition—may affect a VOP's ability to equalize on the descent, or risk of reverse sinus block on the ascent, both of which can lead to barotrauma
- Pacemaker/implantable device (possibility of malfunction under pressure, if the device delivers a shock in a high oxygen environment could ignite a fire, need to coordinate with the safety officer and call manufacturer to make sure device has been pressure tested to the treatment depth you are going to recommend)
- Recent eye/retinal/cataract surgery or optic neuritis (buckle procedure can have air trapped, other procedures can leave bubbles inside and usually require a few months waiting period before initiation of treatment)
- Recent thoracic surgery (recommend imaging to rule out pneumothorax)
- Obstructive lung disease/chronic obstructive pulmonary disease (COPD)/asthma (lose the hypoxic drive to breathe, can screen with pulmonary function tests and xenon washout study to evaluate for risk of air trapping)
- History of seizures (recommend that the seizures need to be controlled before initiation of treatment, monitor therapeutic levels, may require lower treatment pressures)
- Untreated cancer (controversial topic, but there are no studies to date showing that hyperbarics promote malignant cell proliferation)
- Contact lenses (need to be gas permeable, no hard contact lenses)

Clinical Significance

In assessing a patient's medications, clinicians need to remember the following pharmacotherapy interactions with hyperbaric oxygen treatments:

--Bleomycin can lead to interstitial pneumonitis (recent exposure, usually within a 12-month period), pulmonary fibrosis.

--Sulfamylon and Platinum Based Medications impair wound healing.

--Disulfiram blocks superoxide dismutase, which is protective against oxygen toxicity

--Doxorubicin can cause cardiotoxicity (must wait a minimum of 72 hours from the last dose).

Thus these medications are recommended to be discontinued before treatment.