

BaroMedical

The Potential of Hyperbaric Oxygen Therapy During
the Novel Coronavirus (COVID-19) Outbreak



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Introduction

This document outlines the position of BaroMedical Research Centre Inc. (est. 1999) regarding the potential of hyperbaric during the COVID-19 pandemic.

BaroMedical is a specialised health care facility in Burnaby, British Columbia, Canada, utilizing oxygen under pressure to treat an array of acute and chronic conditions. BaroMedical operates four single person (mono-place) hyperbaric chambers compressed with pure 100% medical grade oxygen.

Potential of Hyperbaric Oxygen Therapy for COVID-19

The SARS-CoV-2 virus which causes COVID-19 primarily attacks the respiratory system. Front line doctors report patients with rapidly declining oxygen saturation needing mechanical ventilation to reverse low oxygen saturation (medically known as hypoxia).

The current approach to treating COVID-19 is similar to that of viral pneumonia¹, with the severely ill requiring the assistance of mechanical ventilation. While countries are stocking up on ventilators, new evidence is arising from New York City's emergency doctors' experience suggesting they may not be effective enough^{1,2}; **it is not lung failure which causes death among COVID-19 patients, but systemic and prolonged oxygen deprivation (hypoxia)**. This oxygen deprivation situation is similar to altitude sickness among mountaineers who are exposed to "thin air" (lower partial pressure of oxygen available to breathe) and to carbon monoxide poisoning (carbon monoxide molecules occupying the oxygen sites on the hemoglobin, preventing oxygenation). **In all these cases, the oxygen deficit can be balanced by exposing the whole body to an increased concentration of oxygen, such as during hyperbaric oxygen therapy (HBOT).**

HBOT is the administration of 100% medical oxygen under pressure and is specifically designed to address hypoxia. At one atmosphere (sea level atmospheric pressure), the healthy haemoglobin will be 100% saturated with oxygen during HBOT. Additional oxygen can be delivered at elevated pressures. At three atmospheres during HBOT, up to 20 times more oxygen is dissolved in the bodily fluids, including the blood plasma, lymphatic, and cerebrospinal fluids.

Although HBOT cannot eradicate the virus causing COVID-19, it will provide oxygen to the hypoxic tissue, as well as support the body's immune system. The therapy may delay or reduce severe complications, potentially avoiding the need for mechanical ventilation altogether. An ongoing study in New York City is assessing how HBOT may reduce mortality and the need for ventilation among COVID-19 patients³. The pilot study is expected to conclude by July 2020.

References

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2. Whyte J, Kyle-Sidell C. Do COVID-19 Ventilation Protocols Need a Second Look? Medscape. <http://www.medscape.com/viewarticle/928156>. Published April 6, 2020. Accessed April 16, 2020.
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