Recompression of a diver with decompression illness found to be COVID-19 positive

As the grip of the COVID-19 pandemic starts to ease and more divers return to the water, it is inevitable that hyperbaric centres will encounter divers with decompression illness (DCI) who also are found to be positive for COVID-19.

At DDRC Healthcare we have recently treated a diver with joint pain and neurological DCI symptoms of paraesthesia and mild weakness on dorsiflexion that was causing no functional deficit. On arrival at our centre, although asymptomatic, she was found to be positive for COVID-19 on a lateral flow test.

Prior to this, our practice had been guided by the European Underwater and Baromedical Society and European Committee for Hyperbaric Medicine position statement from March 2020, namely avoiding or postponing hyperbaric oxygen therapy (HBOT) in COVID-19 positive patients unless 'considered absolutely necessary to mitigate life-limb threatening or severe functional incapacity'.¹

However, as the trajectory of COVID-19 has changed and more people are having asymptomatic or mild disease than before, treatment of those with less severe DCI found to be positive for COVID-19 should now be considered. Our decision to treat this patient factored in two key considerations; the risk to the patient of treating versus not treating, and the risk to others in the centre, particularly the duty chamber attendant. The patient was asymptomatic for COVID-19, and had a normal respiratory examination and resting oxygen saturations. Conversely, her DCI symptoms were causing significant distress and anxiety. Whilst some studies have shown that computerised tomography lung changes are found even in asymptomatic patients² a recent literature review undertaken by ourselves and presented at the UK Diving Medical Committee and British Hyperbaric Association Conference (Oban, November 2021) found no case reports of COVID-19 related barotrauma or oxygen toxicity in divers or hyperbaric chambers. A recent metaanalysis reported purposive use of HBOT in treatment of pulmonary manifestations of COVID-19 in 224 patients with no reported adverse effects.³ For this patient, it was felt the established potential benefits of recompression treatment outweighed a theoretical risk of harm.

The risk of infection to others was also carefully considered. Having spent the previous two years fastidiously ensuring that COVID-19 was kept out of our facility, understandably the idea of treating a patient who was known to be positive caused some degree of consternation amongst the on-call team. This was not only in terms of the logistics with infection control and personal protective equipment (PPE), but also as to who would be the chamber attendant given personal and work reasons for wanting to avoid COVID-19. Many chamber staff also work as commercial divers and may be cautious with regards to their exposure risk and implications for fitness to work. Nevertheless, the COVID-19 pandemic has shown the efficacy of appropriate PPE and infection control policies for mitigating these risks.

Despite the patient having non-functionally limiting symptoms, the clinical team felt that in view of the neurological manifestation of DCI that HBOT was indicated. The patient was treated with a Royal Navy 62 table (284 kPa, 2.8 atmospheres absolute, 18 metres of seawater equivalent) wearing a hood with an isolated breathing supply throughout, with air breaks completed by switching external gas supplies rather than removing the hood. The chamber attendant wore a fluid-resistant surgical face mask and single-use apron and gloves, and then their own oxygen built-in breathing system for decompression. Other authors have reported infection control strategies in treatment of COVID-19 or suspected COVID-19 patients with non-diving emergency indications for HBOT.^{4,5} The treatment went smoothly with an almost total resolution of DCI symptoms for the patient and as such no repeat treatments were warranted. No side effects of hyperbaric treatment were seen.

We hope that this our experience may be of use to other centres who find themselves in a similar position in the future.

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