



Category: Clinical Application of Technology

Workshop Title: Hyperbaric Oxygen Therapy in Multidisciplinary Approach to Neuro-rehabilitation in Persons with Brain Injury

Workshop Organizer(s): Abhishek Srivastava

In person Speaker(s):

8.15 – 8.45 AM - Dr Navita Vyas - Hyperbaric Oxygen Therapy: Principles and Practice

8.45 – 9.15 AM - Dr Abhishek Srivastava - Hyperbaric Oxygen Therapy in Persons with Disorders of Consciousness after Brain Injury

9.15 – 9.45 AM – Discussions and Quiz

Workshop Time: 08:15 - 09:45

Attendee Engagement: Discussions and quiz

Abstract:

Hyperbaric Oxygen Therapy (HBOT) is defined as the inhalation of 100% oxygen under the pressure greater than 1 atmosphere absolute (ATA). HBOT has been shown to inhibit apoptosis, suppress inflammation, protect the integrity of blood-brain barrier, and promote angiogenesis and neurogenesis. HBOT has been used along with multidisciplinary rehabilitation in persons with disorders of consciousness due to stroke, traumatic brain injury and hypoxic encephalopathy. HBOT is commonly used in the management of stroke since 1960 and is proved safe and beneficial. Recent studies have illustrated to accomplish neuroprotective effects in stroke via a variety of complex molecular, biochemical and hemodynamic mechanisms. Cochrane review, in people with traumatic brain injury, showed a significant reduction in the risk of dying when HBOT was used ($P = 0.003$) and suggests we would have to treat seven patients to avoid one extra death. Two small trials reported a significant improvement in GCS for patients treated with HBOT (MD 2.68 points, $P < 0.0001$). Severe global hypoxic-ischemic injury primarily affects the grey matter structures due to its high metabolic requirement for oxygen and glucose to supply a large number of synapses. Efficacy of hyperbaric oxygen therapy (HBOT) in patients with hypoxic ischemic encephalopathy (HIE) was evaluated and found a significant difference in Coma Recovery Scale favouring the HBOT group. The aim of the workshop is to discuss the role of HBOT with comprehensive multidisciplinary neurorehabilitation in acute/sub-acute stage in improving neurological and functional outcome in patients with disorders of consciousness due to severe brain injury. The discussion will be based on the literature review, available guidelines and personal experience & studies conducted at the institute.