

# Hyperbaric Oxygenation: The Recoverable Brain in Certain Pediatric Patients

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## **SUMMARY**

Anoxic-ischemic encephalopathy and traumatic brain injury in children are examples of devastating conditions, which can be responsible for decades of disability. A regimen of single photon emission computerized tomography (SPECT) scanning and hyperbaric oxygen (HBO) treatment is now available to identify recoverable (stunned or dormant) brain tissue and potentially improve function in such patients. A baseline scan is performed. A challenge with hyperbaric oxygen ( 1.5 ATA, 1 Hr. 1-20 txs) is given and the scan is repeated. Observation of increased flow is indicative of increased metabolism since the tracer crosses the blood brain barrier. Such positive changes seen in the SPECT are frequently paralleled with clinical improvement. PT, OT, speech, biofeedback, occasional herbal medications are used as part of a multi-disciplinary brain repair approach. Three such cases will be presented; two cerebral palsy (M ages 3 and 4) and an F age 8, with closed head injury.

## **MATERIALS AND METHODS**

The protocol is one that had been previously published (1). It involves Sequential SPECT (brain) functional imaging with an HBO challenge of (1 hr x 1.5 ATA) 1-2 times a day in a monoplace hyperbaric chamber (dickers Ltd, Hampshire, UK). 1020 exposures to HBO were performed to ascertain the possibility of recoverable brain tissue. The second scan was done within two hours following the HBO exposure prior to the second scan. The radioactive tracer used was Tc 99m dl

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