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Coma reversal with cerebral dysfunction recovery after repetitive hyperbaric oxygen therapy for severe carbon monoxide poisoning.

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The accepted beneficial effects of hyperbaric oxygen (HBO) include a greatly diminished carboxyhemoglobin (COHgb) half-life, enhanced tissue clearance of residual carbon monoxide (CO), reduced cerebral edema, and reversal of cytochrome oxidase inhibition, and prevention of central nervous system lipid peroxidation. Debate regarding the criteria for selection of HBO versus 100% normobaric oxygen therapy continues, and frequently is based solely on the level of COHgb saturation. Patients who manifest signs of serious CO intoxication (unconsciousness, neuropsychiatric symptoms, cardiac or hemodynamic instability) warrant immediate HBO therapy. An unresponsive 33-year-old woman was found in a closed garage, inside her automobile with the ignition on. Her husband admitted to seeing her 6 hours before discovery. 100% normobaric oxygen was administered in the prehospital and emergency department settings. The patient had an initial COHgb saturation of 46.7%, a Glasgow coma score of 3, and was transferred for HBO therapy. Before HBO therapy, the patient remained unresponsive and demonstrated decerebrate posturing and a positive doll's eyes (negative oculocephalic reflex). The electroencephalogram pattern suggested bilateral cerebral dysfunction consistent with a toxic metabolic or hypoxic encephalopathy. The patient underwent HBO therapy at 2.4 ATA for 90 minutes twice a day for 3 consecutive days. On day 7, the patient began to awaken, was weaned from ventilatory support, and was not soon verbalizing appropriately. A Folstein mental status examination showed a score of 26 of 30. Neurological examination demonstrated mild residual left upper extremity weakness and a normal gait. There was no evidence of significant neurological sequelae at 1 month follow-up.(ABSTRACT TRUNCATED AT 250 WORDS)

PMID: 8043054 [PubMed - indexed for MEDLINE]