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Prediction of neurologic outcome in patients with spinal cord injury by using hyperbaric oxygen therapy.

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The effectiveness of hyperbaric oxygen therapy (HBO) in predicting neurological recovery in patients with spinal cord injury was evaluated. HBO has been used to treat spinal cord injury, but HBO does not appear to greatly alter the neurological outcome. This is the first report of the use of HBO as a diagnostic tool to evaluate neurological recovery after spinal cord injury. The study group consisted of 22 patients, aged 21-73 years, with spinal cord injuries. The effect of HBO was evaluated on admission and categorized as one of four grades (excellent, good, fair, or poor). The neurological status was evaluated on admission and at the time of follow-up, according to Frankel grade and the American Spinal Injury Association (ASIA) motor score. Correlations between the HBO effect and Frankel grade recovery and correlations between the HBO effect and recovery rate of the ASIA motor score were evaluated. The recovery in Frankel grade from admission to the final follow-up became better as the effectiveness of HBO increased ($r = 0.445$; $P = 0.0414$). The Frankel grade ($r = 0.036$; $P = 0.871$) and ASIA motor score ($r = 0.029$; $P = 0.893$) on admission did not correlate with the recovery in Frankel grade. There was a significant correlation between the HBO effect and the recovery rate of the ASIA motor score ($r = 0.586$; $P = 0.0072$), but this correlation was weaker than that for the ASIA motor score on admission ($r = 0.752$; $P = 0.0006$). We conclude that HBO can be employed to assess the status of spinal cord function recovery after spinal cord injury.

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