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[Enhanced regeneration of terminal axons after hyperbaric oxygen therapy in a patient resembling progressive postpoliomyelitis muscular atrophy]

[Article in Japanese]

[Nakajima M](#), [Kuwabara S](#), [Uchino F](#), [Hirayama K](#).

Department of Neurology, School of Medicine, Chiba University.

We found an electromyographical proof of reconstruction of the motor nerve terminals following hyperbaric oxygen therapy. A 38-year-old man who had been partially recovered for thirty four months from acute onset paraplegia following a gastrointestinal infection developed progressive muscular atrophy and weakness of the lower limbs, and was first admitted to our hospital. Cerebrospinal fluid examination was normal and nerve conduction studies showed small compound muscle action potentials without an evidence of segmental demyelination. There were ample fibrillation potentials on electromyography. Single fiber electromyography (SFEMG) showed increased fiber density, abnormal jitter and blockings without neurogenic jitter, which were similar to findings in post-poliomyelitis syndrome. He was treated by hyperbaric oxygen consisting of two hour exposures to pressures of two atmospheres breathing 100% oxygen. These exposures continued for a month daily, and thereafter once a week for one year. Clinical improvement of the weakness and a decrease in amount of fibrillation potentials occurred on and after a month after treatment. We found significant changes on SFEMG a year later. There were increased fiber densities and decreased mean values of consecutive differences. These changes indicate diminished degeneration and enhanced regeneration of the terminal axons. We think that hyperbaric oxygen has a beneficial effect on oxygen metabolism of remaining motoneurons which may not be able to maintain excessive metabolic demands of all their sprouting axons.

PMID: 8156710 [PubMed - indexed for MEDLINE]

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