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Title: Case control study of cerebral perfusion deficits in divers using 99Tcm hexamethylpropylene amine oxime

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Keywords: decompression  
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Abstract: In a preliminary report, Adkisson et al. (Lancet 1989; 2:119-121) used 99Tcm-hexamethylpropylene amine oxime (HMPAO) single photon emission computed tomography (SPECT) to provide evidence for cerebral perfusion deficits in 28 cases of dysbarism. The report caused concern because these deficits were found even in cases in which the clinical manifestations were limited to the spinal cord. To address this issue further, a case-control study of cerebral perfusion using 99Tcm-HMPAO SPECT is reported. Four groups of 10 subjects were studied: a) divers scanned on average 11 days after treatment of neurologic decompression illness, b) divers scanned 3-5 yr after treatment for neurologic decompression illness, c) diver controls, and d) population controls. All groups were matched for age, and the divers were further matched for general diving experience. The scans were randomized and reported blind to history. Despite a trend toward larger numbers of deficits in individuals with decompression illness, the 4 groups were statistically indistinguishable. Furthermore, no correlation was found between the location of the perfusion deficits and the clinical presentation. These results indicate that 99Tcm-HMPAO SPECT scanning requires further evaluation before clinical significance can be ascribed to perfusion deficits found in divers.

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