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Title: Treatment of experimental cerebral air embolism with lidocaine and hyperbaric oxygen

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Abstract: Experiments were performed to assess the combined therapeutic effects of hyperbaric oxygen (HBO) and i.v. lidocaine on neural function after ischemia induced by cerebral air embolism in anesthetized cats. Neural function was determined by measuring the somatosensory evoked potential (SEP) amplitude. Air was infused into the carotid artery in increments of 0.08 ml to maintain the SEP amplitude at 10% or less of baseline values for 15 min. Three groups were studied. A control group (n = 9) received no further treatment after SEP suppression. An HBO group (n = 8) was treated with oxygen at 2.8 atm abs for 130 min. A third group (n = 8) received an i.v. lidocaine infusion in addition to HBO. Air infusion suppressed the SEP amplitude to the same level in all groups. The control group recovered 27.4 +/- 5.5% (mean +/- SEM) of the baseline SEP amplitude, whereas the HBO group recovered 62.0% +/- 7.2%, and the HBO plus lidocaine group recovered 75.3 +/- 5.7%. The results show that both HBO and the combination of HBO and lidocaine promote a significant recovery of the SEP amplitude compared to no treatment. However, lidocaine therapy adds no benefit to HBO therapy alone.

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