Prior Oxygen Boost May Aid Post-CABG Cognition

BY BRUCE JANCIN Denver Bureau

NEW ORLEANS — Spending a few hours in a hyperbaric chamber before undergoing on-pump coronary artery bypass graft surgery markedly reduces postoperative neurocognitive dysfunction, according to the findings of a randomized double-blind trial.

The trial included 64 patients scheduled for on-pump CABG surgery, who spent three sessions inside a hyperbaric chamber at 24, 12, and 4 hours prior to their surgery. During each session, they were exposed to 60 minutes of 100% oxygen at either 2.4 atm of pressure or normobaric room air. Surgeons, patients, and the neuropsychologist were blinded to which treatment the patient received, Joseph Alex, M.D., explained at the annual scientific sessions of the American Heart Association.

A battery of neuropsychological tests was administered 1 week before and again

4 months following CABG surgery. Significant neurocognitive dysfunction—a decline of at least 1 standard deviation on any two tests in the battery—was documented in 55% of control subjects and 30% of patients who underwent hyperbaric oxygenation before surgery, according to Dr. Alex of Castle Hill Hospital, Cottingham, and the University of Hull, England.

The two patient groups were comparable in terms of all key perioperative variables that might have affected neurocognitive function, including time spent on a ventilator, need for and length of ICU stay, blood transfusion, development of renal dysfunction, and cardiac arrhythmias.

Patients who underwent preoperative hyperoxygenation not only had less neurocognitive impairment; they also showed significantly less postoperative anxiety and depression symptoms, Dr. Alex added.

Hyperbaric chamber use has previously been shown to promote healing of refractory leg ulcers and other wounds.

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*Next-day residual effects were evaluated in 7 studies involving normal volunteers. In 3 studies in adults (including 1 study in a phase-advance model of transient insomnia) and 1 study in elderly subjects, a small but statistically significant decrease in performance was observed in the Digit Symbol Substitution Test (DSST) when compared with placebo. Studies in nonelderly patients with insomnia did not detect evidence of next-day residual effects using the DSST, the Multiple Sleep Latency Test (MSLT), and patient ratings of alertness.⁴

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