Timely Hyperbaric Oxygen Helps Recovery of Stroke Patients

By Mat as A. Loewy

BUENOS AIRES (Reuters Health) Jun 28 - The combination of intravenous thrombolysis and hyperbaric oxygen treatment within the first 3 hours after onset of ischemic stroke reduces infarct volume and seems to help functional recovery, according to the results of a small German pilot study presented here last week at a Regional Stroke Meeting of the International Stroke Society.

"[The combination] was feasible and safe in our pilot trial. After 90 days, five out of six patients treated were functionally independent," announced Dr. Dietmar Schneider and colleagues from the Neurology Department of the University of Leipzig.

Hyperbaric oxygen treatment supplies oxygen to salvage structurally intact brain tissue at risk of irreversible damage after a cerebral focal ischemia episode. The high-risk cerebral area targeted is the penumbra.

The same German researchers proved that single hyperbaric oxygen treatment may reduce infarct volume at day 7 in hypertensive rats subjected to permanent middle cerebral arterial occlusion. The approach was successful in rats treated 15 minutes after middle cerebral arterial occlusion, losing its efficacy gradually when the HBO supply was delayed 90, 180 or 360 minutes.

"Animal results confirmed that we had to act as soon as possible," Dr. Schneider told Reuters Health. All six patients taking part in the pilot trial were initially treated with thrombolysis and hyperbaric oxygen within 3 hours after onset of ischemic symptoms. They had eight sessions in a monoplace chamber containing 100% oxygen.

During each 90-minute session the atmospheric pressure was raised to 2.4 atmospheres absolute (ATA), which is "equivalent to being 50 meters beneath the sea," said Dr. Schneider.

All hyperbaric oxygen sessions were well tolerated. Patients were evaluated at day 90 by means of clinical cognitive scores and 99mTc-ECD SPECT images, which measure brain perfusion deficits.

According to Dr. Schneider, "five out of six patients were almost completely recovered." Researchers did not use a control group to compare the results.

"This is a first step. We cannot consider hyperbaric oxygen to be a new stroke treatment, as the amount of patients who were treated is still too small," Dr. Schneider said. He added that his group is planning a more ambitious study in September with 20 patients, using MRI to monitor them before and after treatment.