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## Prehospital Neuroprotective Stroke Therapy Safe and Feasible

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By Will Boggs, MD

NEW YORK (Reuters Health) May 21 - Having paramedics give intravenous magnesium sulfate as neuroprotective therapy to patients with focal strokes before they arrive in the hospital is safe and feasible, according to results from the Field Administration of Stroke Therapy-Magnesium (FAST-MAG) Pilot Trial.

"The FAST-MAG Pilot trial is the first practical demonstration that prehospital implementation of neuroprotective therapy is achievable," Dr. Jeffrey L. Saver from Geffen School of Medicine of the University of California, Los Angeles, California told Reuters Health.

Dr. Saver and colleagues performed an open-label clinical trial in which patients in the field were identified as having strokes by the Los Angeles Prehospital Stroke Screen, evaluated using the Los Angeles Motor Scale measure of stroke deficit severity, and treated with intravenous magnesium sulfate if their symptoms had begun within 12 hours of the arrival of paramedics on the scene. Their results appear in the May issue of Stroke.

Twenty patients were treated, all of whom were confirmed later to have experienced an ischemic (16 patients) or a hemorrhagic (4 patients) stroke. Magnesium sulfate infusion began a median 206 minutes from the last known well time, the authors report, nearly 2 hours faster than treatment occurred in an earlier in-hospital neuroprotective trial.

Magnesium infusion had to be terminated in one patient because of skin flushing, the report indicates, but there were no serious adverse events related to field initiation of therapy.

Paramedics rated 4 patients as improved, 15 as unchanged, and 1 as worse.

Six of the 16 ischemic stroke patients showed dramatic early recoveries, the researchers note, including 5 of the 12 treated within 2 hours of onset.

"Paramedic initiation of neuroprotective therapy in the field is a promising approach to starting experimental agents in the 'golden hour' after onset, when salvageable brain tissue still exists in abundance," Dr. Saver said. "A future vision of acute stroke care widely shared in the stroke research community is that paramedics will start a cocktail of neuroprotective agents in the field to 'freeze' the ischemic penumbra until definitive, in-hospital recanalization therapies, either IV lytics or intra-arterial mechanical embolectomy, can restore blood flow."

"Based in part on the successful results of the pilot trial, we have received a \$13 million, 4 year Award from the National Institute of Health to perform a pivotal, phase 3 trial, the Field Administration of Stroke Therapy - Magnesium (FAST-MAG) Phase 3 Trial," Dr. Saver added. "This study will compare magnesium sulfate versus

placebo among 1298 ambulance-transported patients with acute stroke, with study agent initiated within 2 hours of onset in all patients, and within 1 hour of onset in half."

"Time lost is brain lost in acute stroke," Dr. Saver concluded. "The earlier that patients, families, co-workers, or other on-scene individuals call 911, the better the chance of rescuing threatened brain."

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