Bone marrow stem cell therapy safe for acute stroke: report

August 31 2011

Using a patient's own bone marrow stem cells to treat acute stroke is feasible and safe, according to the results of a ground-breaking Phase I trial at The University of Texas Health Science Center at Houston (UTHealth).

The trial was the first ever to harvest an acute stroke patient's own stem cells from the iliac crest of the leg, separate them and inject them back into the patient intravenously. The first patient was enrolled in March 2009 at Memorial Hermann-Texas Medical Center. This research, with additional funding from the National Institutes of Health, has been expanded to a larger trial to study safety.

"In order to bring stem cells forward as a potential new treatment for stroke patients, we have to establish safety first and this study provides the first evidence in addressing that goal," said Sean I. Savitz, M.D., principal investigator and associate professor of neurology at The University of Texas Medical School at Houston, part of UTHealth. "Now we are conducting two other stroke cell therapy studies examining safety and efficacy, one of which can be administered up to 19 days after someone has suffered a stroke."

The study's findings were published in a recent issue of the Annals of Neurology. Of the 10 patients enrolled in the study, there were no study-related severe adverse events. Although the study was not intended to address efficacy, the investigators compared the study group with historical control patients, who admitted to the stroke service at

Memorial Hermann-TMC before the trial began. In that comparison, the study team found a number of patients who did better compared with controls. However, Savitz said that type of analysis has limitations.

Stroke occurs when blood flow to the brain is interrupted by a blockage or a rupture in an artery, depriving brain tissue of oxygen. It is the third-leading cause of death behind heart disease and cancer and a leading cause of disability. According to the American Stroke Association, nearly 800,000 Americans suffer a stroke each year – one every 40 seconds.

The only current treatment for ischemic stroke, the most prevalent kind, is the clot-buster tPA. But only one-third of patients respond well to tPA, so researchers continue to look at other therapies.

Savitz' other stem cell studies for stroke are using a regenerative therapy developed by Aldagen that uses a patient's own bone marrow stem cells injected into the carotid artery; and an umbilical cord-derived cell therapy that can be used "off-the-shelf," which he hopes to bring to community hospitals so that a larger number of stroke patients in Houston have access to ground-breaking research testing new potential therapies.

Provided by University of Texas Health Science Center at Houston