Stem cells aid recovery from stroke

January 27 2013

Stem cells from bone marrow or fat improve recovery after stroke in rats, finds a study published in BioMed Central's open access journal *Stem Cell Research & Therapy*. Treatment with stem cells improved the amount of brain and nerve repair and the ability of the animals to complete behavioural tasks.

Stem cell therapy holds promise for patients but there are many questions which need to be answered, regarding treatment protocols and which cell types to use. This research attempts to address some of these questions.

Rats were treated intravenously with stem cells or saline 30 minutes after a stroke. At 24 hours after stroke the stem cell treated rats showed a better functional recovery. By two weeks these animals had near normal scores in the tests. This improvement was seen even though the stem cells did not appear to migrate to the damaged area of brain. The treated rats also had higher levels of biomarkers implicated in brain repair including, the growth factor VEGF.

A positive result was seen for both fat (adipose) and bone-marrow derived stem cells. Dr Exuperio Díez-Tejedor from La Paz University Hospital, explained, "Improved recovery was seen regardless of origin of the stem cells, which may increase the usefulness of this treatment in human trials. Adipose-derived cells in particular are abundant and easy to collect without invasive surgery."

More information: Effects of intravenous administration of allogenic

bone marrow- and adipose tissue-derived mesenchymal stem cells on functional recovery and brain repair markers in experimental ischemic stroke, María Gutiérrez-Fernández, Berta Rodríguez-Frutos, Jaime Ramos-Cejudo, M Teresa Vallejo-Cremades, Blanca Fuentes, Sebastián Cerdán and Exuperio Díez-Tejedor, *Stem Cell Research & Therapy* (in press)

Provided by BioMed Central