



## Advance Techniques in Brain Stem Cell Therapy

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### DISCRIPTION

Dead or damage cells are replaced and/or repaired using stem cell therapy. Embryonic Stem Cells (ES cells), Induced Pluripotent Stem Cells (iPS cells), and adult or somatic stem cells are some of the different types of stem cells. They could also be used to support diseased cells and exert control or regulating pressure on the patient's central nervous system, among other things. Brain diseases like Parkinson's, Amyotrophic lateral sclerosis, Alzheimer's, brain stroke, and traumatic brain injury can all be treated with stem cells.

Results from a phase 2 trial show that stem cell therapy is safe and well tolerated in patients with Traumatic Brain Injury (TBI), and it improves motor impairment. There are currently no effective medications to treat the motor deficits that can result from TBI, which can cause chronic disability. Somatic stem cell therapy is gaining popularity as a means of regaining lost function. It is believed that stem cells, which can differentiate or multiply into different types of cells, encourage the repair and regeneration of tissues or organs damaged by disease or trauma.

61 TBI patients with an average age of 34 years were included in the study. The Glasgow Outcome Scale Extended (GOS-E) ranged from 3-6, and the mean time since injury was roughly 8 years. Randomly, 15 people were given a sham procedure and 46 people received stem cell therapy. Three distinct cell doses were used in the treatment group ( $2.5 \times 10^6$ ,  $5 \times 10^6$ ,  $10 \times 10^6$ ).

An experimental regenerative cell medicine using mesenchyme stem cells derived from bone marrow was used as the treatment. The male donor was the source of the allogeneic cells. Using an MRI to guide him, a neurosurgeon performed the 20-minute procedure by drilling a tiny hole in the patient's skull and

injecting stem cells directly into the lesion. Patients who underwent a surgical sham procedure had a hole drilled into their head over the location of their lesion while they were asleep in the operating room. But the doctor only cut half of the way through the skull bone.

For the first six months of the study, participants were told to perform particular physiotherapy exercises at home every morning and every afternoon. The Fugl-Meyer Motor Scale score change was the main efficacy endpoint. This scale is frequently used to evaluate various aspects of motor function in patients, such as dexterity, range of motion, walking, and lower limb movement. At 24 weeks, there was a significant difference between the FMMS score for SB623-treated patients (LS mean increase 8.3) and controls (LS increase 2.3) ( $P = .04$ ).

The people who received stem cells performed statistically significantly better than the group who received sham treatments when all the data was examined at six months, according to McAllister, and this improvement started within the first week or two. According to him, the treatment truly affected the lives of the patients. Some people with completely paralyzed arms were able to put a nut on a bolt, brush their teeth, and button and unbutton where they previously couldn't.

Recent studies on stem cell therapy seem like a dream come true if you have a spinal cord injury. Stem cells may be able to reestablish communication between your body and brain, much like a wire is spliced back into a severed cable. You might feel the grass between your toes or the touch of a lover again after being completely numb for a long time. You might get up from your chair or raise a glass of wine to your lips after being still for an eternity.

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**Received:** 01-Jul-2022, Manuscript No. BDT-22-17711; **Editor assigned:** 04-Jul-2022, Pre QC No. BDT-22-17711 (PQ); **Reviewed:** 18-Jul-2022, QC No. BDT-22-17711; **Revised:** 25-Jul-2022, Manuscript No. BDT-22-17711 (R); **Published:** 01-Aug-2022, DOI: 10.35248/2168-975X.22.11.168.

**Citation:** Shao A (2022) Advance Techniques in Brain Stem Cell Therapy. Brain Disord Ther 11:167.

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