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# CENTRAL NERVOUS SYSTEM DISORDERS & THERAPEUTICS

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## Alok Sharma

NeuroGen Brain & Spine Institute, India

### Clinical results of stem cell therapy in neurological disorders

Stem cell therapy has emerged as a promising treatment option for various incurable neurological disorders. We studied the safety and efficacy of intrathecal transplantation of autologous bone marrow mononuclear cells in these disorders and present our published data.

**(A) Neurodevelopmental Disorders:** (1) Autism Spectrum Disorder: In 32 cases of ASD, 92% cases showed improvement in different aspects of ISAA along with improved scores of CGI and FIM indicating cognitive and functional improvements. (2) Cerebral Palsy: In 40 cases of CP, 95% patients showed improved oromotor activities, neck control, sitting, standing, walking balance and speech with improved metabolism recorded in the PET CT scan brain. (3) Intellectual Disability: In ID, outcome of 29 patients of the intervention group was compared to that of 29 patients from only rehabilitation group and it was found that all patients in the intervention group showed improvement while, there was no improvement in 20.69% patients from only rehabilitation group.

#### **(B) Neuromuscular Disorders:**

**(1) Muscular Dystrophy:** In 150 MD patients, 86.67% showed improved strength in trunk, upper and lower limbs and gait.

**(2) Amyotrophic Lateral Sclerosis:** In ALS, comparison of the survival analysis was performed between the treated population (n=37) and the control group (n=20). It was found that the survival duration of the treated population was 30.38 months more than that of the control group.

**(C) Neurotraumatic Disorders:** (1) Spinal Cord Injury: In SCI, 91% of 110 thoracolumbar SCI patients and 74% of 56 cervical SCI patients showed improvement in spasticity, sensation, trunk control, bladder management, standing and sitting balance, ambulation and ADLs along with FIM, ASIA, and EMG/NCV. (2) Traumatic Brain Injury: In TBI, 93% of 14 TBI patients displayed improved balance, voluntary control, muscle tone, oromotor activities, cognition, coordination, speech, ambulation and ADLs after intervention.

**(D) Neurovascular Disorders:** (1) Brain Stroke: In 24 patients of brain stroke, better outcome was observed in patients with ischemic stroke as compared to haemorrhagic stroke with improvement in ambulation, hand function, standing and walking balance.

We conclude that stem cell therapy is a safe and an effective treatment option for the above clinical conditions.

### Biography

Alok Sharma is the Director of NeuroGen Brain & Spine Institute, Professor and Head of Department of Neurosurgery, LTMG Hospital & LTM Medical College. He completed MS and MCh from Seth G.S. Medical College and KEM Hospital, Mumbai and subsequently trained at the Karolinska Hospital, Sweden & University of Colorado Health Sciences Center, USA. He has published 112 scientific papers, authored 14 books, edited 2 books, contributed chapters in 8 books and made over 150 scientific presentations nationally and internationally. He is Founding President of the "Stem Cell Society (India)" and Vice President of "International Association of Neurorestoratology" He is Founder of "The Indian Journal of Stem Cell Therapy" and on the editorial board of 4 journals. He has been conferred with numerous awards and honors during his career. His other areas of special interest are Neuroendoscopy, Psychosurgery, Spinal fixations & Revascularization for cerebral ischemia.

alok276@gmail.com