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Clinical results of Stem cell therapy in autism**Alok Sharma**

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An alarming rise in the incidence of ASD and the no availability of definitive treatments for the same have made the need for investigating new therapeutic strategies the need of the hour. Pre-clinical and clinical research has shown a promising outcome of cellular therapy such as stem cell therapy in various incurable neurological disorders. Bone marrow stem cells have unique ability of self-renewal and differentiation. Their paracrine activities such as immunomodulation, neuroprotection and neurogenesis make them an attractive therapeutic option for ASD. To study the effect of stem cell therapy in autism, a study was conducted on 149 cases of autism. They were administered autologous bone marrow mononuclear cells (BMMNCs) intrathecally and were given a personalized multidisciplinary neurorehabilitation program after the cellular therapy. The mean follow up period of the study was 19 months \pm 1 month. It was observed that overall 134 (90%) out of 149 cases showed improvement. Symptomatically, 122 (81.87%) showed improvement in eye contact, 114 (77%) in attention, 107 (71.81%) in hyperactivity, 86 (57.71%) in social interaction, 74 (49.66%) in communication, 71 (47.65%) in stereotypical behavior, 69 (46%) in speech and aggressiveness and 51 (34.22%) in self-stimulation. No major irreversible adverse events were recorded after the intervention. PET CT scan brain was used to monitor the effect of autologous BMMNCs in autism at a cellular level. On comparing the PET CT scan performed before and 6 months after the intervention, it was observed that FDG uptake was increased in the previously hypometabolic areas (blue; mesial temporal, cerebellar regions) and reduced in the previously hypermetabolic areas (red; frontal, parietal regions) and exhibiting a balancing effect to achieve normalization of brain metabolism. This study opens a new therapeutic avenue for ASD by demonstrating the positive effect of autologous BMMNCs on clinical symptomatology and objective evidence of neuroimaging.

Biography

Alok Sharma is a Neurosurgeon and presently Professor & Head of Department of Neurosurgery at the LTMG Hospital & LTM Medical College, Director of the NeuroGen Brain & Spine Institute and Consultant Neurosurgeon at the Fortis Hospital in Mumbai, India. He has authored 12 books, edited 2 books, contributed chapters to 8 other books and has 83 scientific publications in medical journals. He has made 146 scientific presentations all over the world & has conducted several national and international trials and has been conferred with numerous honors and awards in his distinguished career. He has organized many international and national conferences and regularly conducts hands-on training workshops on Microvascular Surgery, Neuroendoscopy and Spinal fixations. He has been committed to both basic as well as clinical research in attempting to find an answer to the problems of paralysis and neurological deficits that occur following injury and diseases of the nervous system. Is the pioneer of Stem cell therapy in India and has setup the Stem cell and Genetic research laboratory at the LTMG hospital & LTM Medical College. He has also created the NeuroGen Brain and Spine institute which is India's first dedicated Stem Cell Therapy and Neurorehabilitation Hospital. He has published pathbreaking results of Stem Cell therapy in Pediatric Neurodevelopmental disorders such as Autism and Cerebral palsy as well as in other conditions such as Muscular dystrophy and Spinal cord injury. He is the founder of the "Indian Journal of Stem Cell Therapy" and on the editorial board of 4 other journals. He is the Founding President of the "Stem Cell Society of India" and the Vice President of the "International Association of Neurorestoratology". His other special interests include Revascularization surgery for cerebral ischemia, Psychosurgery, Stereotactic surgery, Neuroendoscopy, Spinal surgery and Neurotrauma.

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