

# International Conference on Parkinson's Disease & Movement Disorders

August 11-13, 2015 Frankfurt, Germany

## Use of human embryonic stem cells in the treatment of Parkinson's disease

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Parkinson's disease (PD) is a disorder of central nervous system characterized by rigidity, tremor and hypokinesia. Pharmacological and non-pharmacological methods do not improve the quality of life permanently. We used Human Embryonic Stem Cells (hESCs) to treat a 65-year old male patient with PD. Patient had back and neck stiffness, resting tremors, bradykinesia, muscle rigidity, unclear speech and imbalanced walking. SPECT scan showed moderate hypoperfusion in bilateral parieto-temporal regions and moderate-to-severe hypoperfusion in bilateral basal ganglia and bilateral cerebellar regions. hESCs were cultured and maintained in a GMP, GLP and GTP compliant laboratory using patented technology. Safety and efficacy of these hESCs is established. Treatment consisted of four phases (T1, T2, T3 and T4) with gap phases. hESCs were given through i.v. (1 ml twice a week), i.m. (0.25 ml twice daily), supplemental routes (1-5 ml every week) and via nasal sprays (3.5 ml twice a week). After 12 months of therapy, patient showed remarkable improvement in health with reduction in tremors, muscle rigidity, bradykinesia and stiffness in neck, shoulder and low back pain. Patient experienced reduction in apathy in left hand and legs and was able to balance himself while walking. He was able to speak louder. SPECT scan and MRI showed normal hypoperfusion in the cerebral region of the patient. No adverse event and teratoma formation was observed. Patient is being followed up regularly and is taking no medications. He has mild tremor in right hand. hESC therapy benefitted our patient with PD but further studies are needed to gather more evidence.

### Biography

Geeta Shroff has developed the technology to isolate Human Embryonic Stem Cells (hESC), culture them, prepare them for clinical application and store them in ready-to-use form with a shelf life of six months. Since 2002, more than 1300 patients suffering from various conditions like spinal cord injuries, diabetes, multiple sclerosis, Parkinson's disease, cardiac conditions, cerebral palsy have been treated by her. She is a Graduate in Medicine from the University of Delhi and did her Postgraduation in Gynaecology & Obstetrics. She further specialized in treating Infertility and is a Trained Embryologist and a qualified IVF practitioner. After gaining 8 years of valuable clinical experience at Safdarjung Hospital & Batra Hospital, she set up her own IVF practice in 1996. She has begun research on human embryonic stem cells in 1999 and pioneered in human embryonic stem cell therapy. She has presented her work at various national and international forums.

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