



## Allogenic Mesenchymal Stem Cell Therapy for the CADASIL Patient: First Clinical Case Report

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### Abstract

**C**ADASIL, Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leukoencephalopathy, is an inherited small vessels disease that characterized by central nervous system dysfunctions caused by mutations in the Notch-3 gene. Clinical manifestations accrue due to brain's vasculopathy, neurodegeneration, and immune system reaction. We describe here an effective method for treatment of CADASIL by using mesenchymal stem cell therapy. A CADASIL case, 36 years old man, neuroimaging and genetic analysis for Notch-3 confirmed the diagnosis, is reported. In the present case, two stem cell injections have been performed at intervals of three weeks. The patient had no significant complications in the post-transplant period. No immediate or delayed side effects following MSC infusion were observed. He developed neither malignancy nor unwanted cells or any infectious complications 18 months after the transplantation, we performed a Cerebral MRI showed stable cerebral lesions and his gait and balance improved. Anti-HLA Antibody measurement confirmed that the patient's immune system was not stimulated by injected cells.



### Biography:

Madana Mohiuddin Bonab, pioneer of stem cell Therapy application in the treatment of MS, is one of the authors of this study. She is the best technologist awarded in 13<sup>th</sup>, Anniversary meeting of Pardis Technology Park in 2015 and Co-author of "Multiple Sclerosis A Mechanistic view", "Neuroinflammation" and "The neurobiology of multiple sclerosis" (Elsevier).

### Speaker Publications:

1. Watt FM, Driskell RR. The therapeutic potential of stem cells. *Philos Trans R Soc Lond B Biol Sci.* (2009) 365:155–63.
2. "Takahashi K, Yamanaka S. Induction of pluripotent stem cells from mouse embryonic and adult fibroblast cultures by defined factors. *Cell.* (2006)
3. Bilic J, Belmonte JCI. Concise review: induced pluripotent stem cells versus embryonic stem cells: close enough or yet too far apart? *Stem Cells.* (2012)
4. "Halevy T, Urbach A. Comparing ESC and iPSC-based models for human genetic disorders. *J Clin Med.* (2014) 3:1146–62
5. "Israel MA, Yuan SH, Bardy C, Reyna SM, Mu Y, Herrera C, et al. Probing sporadic and familial Alzheimer's disease using induced pluripotent stem cells. *Nature.* (2012) 482:216–20

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