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Autologous mesenchymal stem cell transplantation for spinal cord injury: A phase-i pilot study

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Mesenchymal stem cells (MSC) transplantation has recently emerged as promising therapeutic approach to treat spinal cord injury. We report safety and preliminary findings on efficacy of intrathecal injection of cultured autologous bone marrow derived MSCs (BM-MSCs) in 10 patients suffering from spinal cord injury. All patients had traumatic spinal injury at thoracic level resulting in complete paraplegia. Patients received 3 doses of autologous BM-MSCs via intrathecal injection. Primary endpoint was safety which was documented by two independent neurologists four weeks after receiving last injection. ASIA scoring, MRI and neurophysiological tests were carried out before treatment and 12 months after receiving treatment. Results: The patients received at median 3 doses of 1.2×10^6 MSCs/Kg body weight. The procedure was well tolerated in all subjects with no adverse event or serious complication

observed during median follow up of 263 days (range: 100-602 days). Six patients suffered from chronic injury, with median duration of 33 months since time of injury (range: 10 to 55 months). Four of them have completed one year of follow up and two have displayed benefits in neurogenic bowel and bladder incontinence, besides limited improvement in hip flexor muscle power. However none has yet shown improvement in ASIA scale. Interestingly, all four patients with sub-acute injury showed some degree of improvement in sensory and motor functions in preliminary reports. These patients also exhibited improved bowel and/or bladder control. Detailed report on efficacy will follow on completion of one year follow up of the remainder patients. Conclusion: This pilot study demonstrated that intrathecal administration of cultured autologous BM-MSCs is safe and feasible for treatment of spinal cord injury.

Biography

Mohammedkhami s Gafar Besaiso is working as a professor in the Ain Shams University, Egypt. He has published many research papers in national and international journals. He has attended many conferences in different countries.

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