Role of autologous bone marrow derived mononuclear cells in arresting the progress of Lou Gehrigs disease

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Abstract

The Lou Gehrig's is also called amylotrophic lateral sclerosis. It is one of the type in motor neuron disease. There is no cure for this disease. So autologous mono nuclear cell transplantation is the only option to arrest the progress of this disease

***Keywords*:** Lou Gehrigs, Amylotrophic Lateral Sclerosis, Motor Neuron Disease, Autologous Mono Nuclear Cell

Introduction

Amylotrophic Lateral Sclerosis belongs to wider group of disorders known as motor neuron disease. Its incidence is very less. There is no cure for this disease. This can last for years or life time. This disease is caused by degeneration and Mortality of motor neurons.These motor neurons provide a communication link between brain and muscles which control voluntary system. In ALSlowermotor nerve cells and upper motor nerve cells gets mortality or degeneration

Case Report

A male patient 61 years was brought to this center 3 years ago presented with clinical symptoms of weakness and stiffness of voluntary muscles.His upper limb power is 2/5 and lower limb power is 3/5. NCV of both upper limb and lower limb showed decreased conduction velocity and increased latency. Decrease in amplitude of wave pattern is noticed.MRI of Brain revealed hypointensity in precentral gyrae in brain.High signal intensity with in the cortical spinal tracts noticed in T2 weighted images of MRI Cervical-spine.Based on the diagnostic and clinical presentation it was diagnosed as Lou Gehrig's disease.so the team decided to go ahead with Autologous Mono Nuclear cell transplantation(Stem cell transplantation)

A detailed explanation was given to the patient and his attendants and pros and cons of this procedure was explained to them.Informed consent was taken in written from patient's family members.Routine all preoperative investigations were performed revealed results with in biological limits. The aspiration of bone marrow was done under local anesthesia (lignocaine and adrenaline)and80 ml of bone marrow was aspirated.by consultant pathologist. The sample was transferred to autologous stem cell isolation lab under sterile conditions and autologous mono nuclear cells were isolated by postgraduate engineer and doctorate in Bio-Technology.About 140.2 X 10^4cells were extracted under sterile conditions and transferred to the operation theatre without contamination and the cells were injected into intrathecal Space by neuro surgeon. Neurosurgeon infused 750 ml of methyl prednisolone intravenously during procedure to achieve immune suppression. Granulocyte colony stimulating factor was given subcutaneously 48 hours before therapy helped in multiplication of these cells and their survival. Routine antibiotics were given and antiepileptic medication were given as prophylactic measure after the therapy to ensure that there will be no complication after the therapy for five days

Results:

Follow up was done for three years. For this patient. Power is assessed by MRC grading. The upper limb power was 3/5and lower limb power was 4/5. He could able to sit and walk with the help of walker No adverse effects were noted during and after therapy, so we have successfully demonstrated the possibility of using Autologous mononuclear cells (stem cells) for the arrest of this disease progression

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