# Stem cells transplantation as disease modifiying therapy for multiple sclerosis

***Hoshyarikhani Mohsen Ghodratolah, Umenta Braithwaite Ugwueze Kingsley***
*Belarusian State Medical University, Minsk*
***Tutors –*** *MD, professor* ***Fedulov Alexandr Sergeevich****, Belarusian State Medical University, Minsk*

**Introduction**

Stem cells transplantation can be new type of disease modifiying therapy for patients with multiple sclerosis because of it's regeneration and differential potential.Autologous hemopoietic and mesenchymal stem cells transplantationn is allowed for multiple sclerosis patients treatment since 2000.

**Aim**

To analyze new prospectives of stem cells transplantation as treatment of multiple sclerosis.

**Materials and methods**

Analysis of literature and research sources of the last 5 years about stem cells transplantation.

**Results**

Recent study set out to determine the long-term effectiveness and safety of auto-HSCT in conjunction with high-dose immunosuppressive therapy (HDIT), along with a decreased intensity BEAM condition regimen, for different types of MS patients. Fassas pioneered BEAM (BCNU (carmustine), cytarabine, etoposide, melphalan) as a conditioning regimen for auto-HSCT, which includes carmustine (bischloroethyl nitrosourea), etoposide, cytosine arabinoside, and melphalan.There were no transplanted deaths observed and the cumulative incidence of disease progression was 16.7 % at 8 years follow up. These studies showed 47 % of the patients improved in their EDSS score (at least 0.5) after auto-HSCT, as compared with the baseline, and 45 % of MS patients were stable at median long-term follow-up for more than 5 years in both the RR-MS and progressive MS groups. Mesenchymal stem cells doesn't request chemotherapy specific regimen for transplantation, can be used by intravenous and intrathecal administration and show immunosuppressive activity, proliferation and differentiation ability.It also can be used cooperative HSCs and MSCs transplantation or repeated MSCT transplantation.

**Conclusion**

The consistency observed in these long term clinical results associated with the quality of life improvement for patients after auto-HSCT and auto-MSCT and show the safety and efficiency of this treatment approach in MS patients.