EXPERT’S CORNER: A PERSONAL APPROACH

Hematopoietic stem cell transplants for persons with multiple sclerosis: Is this the best therapeutic option?

G.J. Ruiz-Argüelles a,b,c,∗, D. Gomez-Almaguer d

a Centro de Hematología y Medicina Interna de Puebla, Puebla, Mexico
b Laboratorios Ruiz, Puebla, Mexico
c Universidad Popular Autónoma del Estado de Puebla, Puebla, Mexico
d Hospital Universitario de Nuevo León, Monterrey, Mexico

Received 5 October 2017; accepted 5 October 2017
Available online 15 November 2017

In the field of autoimmune diseases the possibility to obtain curative therapy is exceptional, and the use of drugs has several limitations, besides, it is important to note that the apparition of undesirable effects are not rare; therefore the use of new ways to treat or cure this kind of diseases is always attractive for patients and the medical scientific world. In this setting, multiple sclerosis (MS) is an autoimmune, chronic, inflammatory, debilitating disease that causes destruction of central nervous system (CNS) myelin, with varying degrees of axonal damage. It mainly affects young adults and is twice as common in women than in men.1 Studies published from the 1990s brought animal models and theoretical considerations of hematopoietic stem cell transplantation (HSCT) being useful in the prevention and treatment of autoimmune diseases, with clinical responses in some patients, suggesting that high-dose chemotherapy followed by HSCT rescue could “reset” the immunological changes through the control of autoreactive clones, followed by immunological tolerance after immune reconstitution. In the autologous HSCT, stem cells are collected after the administration to the MS patient of cyclophosphamide and filgrastim, this combination is using for mobilization of stem cells from bone marrow to the peripheral blood, and the effects of the chemotherapy reduces the amount of lymphocytes in the final stem cell collection, afterwards more chemotherapy is administered and then the stem cells are infused to the patient.1 As mentioned before, many studies have led to the conclusion that HSCT may be a viable therapeutic option for MS.1-10 Autologous HSCT have been given to patients with MS since 1996 and more than 1000 HSCTs have been performed around the world.1-10 Most patients have been treated in small trials or in multicenter studies. In retrospective analysis, a progression-free survival of more than five years after transplant has been observed, the neurological outcomes being considerably more favorable in patients with the relapsing-remitting type and/or those who showed an inflammatory pattern in magnetic resonance imaging (MRI) during the pretransplant screening. Reports of good results, particularly in the aggressive forms of MS, reinforce the effectiveness HSCT in MS patients with prominent inflammatory activity. The risk of transplant related mortality in HSCT for MS was conventionally considered very high but has declined since 2001 to less than 1.3%,1-10 this probably being the result of the changes in the conditioning regimens, thus reducing toxicity and in turn, complications. Recent data, with more than
Table 1  No evidence of disease activity in multiple sclerosis according to the therapeutic option.

<table>
<thead>
<tr>
<th>Study</th>
<th>NEDA at 2 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>HALTS-MS</td>
<td>83%</td>
</tr>
<tr>
<td>Swedish aHSCT</td>
<td>78%</td>
</tr>
<tr>
<td>Drugs</td>
<td>15–50%</td>
</tr>
<tr>
<td>Placebo</td>
<td>5%</td>
</tr>
</tbody>
</table>

NEDA = No evidence of disease activity in active forms of multiple sclerosis (MS). HALT-MS = Hematopoietic cell transplantation for relapsing-remitting multiple sclerosis. aHSCT = autologous hematopoietic stem cell transplantation.

Funding

No financial support was provided.

Conflicts of interest

Authors declare no conflicts of interest

References