Clinical and electrophysiological aspects of Guillain-Barré syndrome following allogenic hematopoietic stem cell transplantation
M.Kawamoto, J.Ishii, S.Fujiwara H.Yoshimura, N.Kohara
Department of Neurology, Kobe City Medical Center General Hospital

Background

Guillain-Barré syndrome (GBS) is a rare complication of allogenic stem cell transplantation (allo-HSCT). There have been several case reports of GBS following allo-HSCT, but systematic reports are very few.

Objectives and Methods

To study the clinical, electrophysiological and pathological characteristics and outcome of GBS following allo-HSCT, we retrospectively searched the allo-HSCT database of our institute between January 2008 and September 2016. We reviewed six cases of GBS in patients who underwent allo-HSCT.

Patient Characteristics

<table>
<thead>
<tr>
<th>age/sex diagnosis</th>
<th>Days from HSCT onset to peak</th>
<th>GVHD prophylaxis of GVHD</th>
<th>infection</th>
<th>anti-ganglioside antibodies</th>
<th>NCS</th>
<th>treatment</th>
<th>outcome</th>
<th>FG symptoms</th>
<th>cause of death</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 32/M CML</td>
<td>215/14</td>
<td>+ tac/MTX</td>
<td>CMV</td>
<td>-</td>
<td>A&gt;D</td>
<td>IVIG</td>
<td>Slightly effective 4→4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 25/M AML</td>
<td>288/27</td>
<td>+ tac/MTX</td>
<td>HHV6</td>
<td>-</td>
<td>A&gt;D</td>
<td>IVIG</td>
<td>Slightly effective 4→4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 46/M DLBCL</td>
<td>445/17</td>
<td>+ tac/MTX</td>
<td>CMV</td>
<td>D&gt;A</td>
<td>IVIG, PE</td>
<td>No response 5→6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 43/F AML</td>
<td>77/8</td>
<td>+ tac/MMF</td>
<td>CMV</td>
<td>D&gt;A</td>
<td>IVIG</td>
<td>No response 4→6</td>
<td>AML</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 56/M MDS</td>
<td>46/16</td>
<td>+ tac/MTX</td>
<td>HHV6</td>
<td>-</td>
<td>A&gt;D</td>
<td>IVIG</td>
<td>effective 4→2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 56/M MDS</td>
<td>137/16</td>
<td>+ tac/MMF</td>
<td>HHV6 CMV</td>
<td>-</td>
<td>A&gt;D</td>
<td>IVIG</td>
<td>Slightly effective 4→4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A typical clinical course : case 2

Nerve Conduction Study (NCS) : case 2

Summary and Discussion

Of the 280 patients who underwent allo-HSCT, 6 patients developed GBS (2.14%) in our case series. The median time from HSCT to GBS was 7 months, the average time from onset to peak was 16.3 days. GBS presented as an acute sensory-motor polyradiculoneuropathy with severe bilateral symmetric weakness of the limbs. NCS suggested mixed axonal and demyelinating neuropathy in all cases. Decreased amplitude and prolonged duration of CMAP were remarkable.

The causes of post allo-HSCT GBS is unclear, but the previous reports suggested that the regime such as high dose AraC, GVHD3, and infection4 might be attributable. In our cases, all the patients had GVHD and treated with tacrolimus when they developed GBS. HHV6, CMV, or both reactivation existed in all patients prior to the onset of GBS and some lasted during the recovery phase. Since it occurred during the treatment of GVHD, an immune-mediated mechanism related to GVHD seemed plausible, but viral infections to some extent might play as the cause of GBS in our cases.

All the patients were treated with intravenous immunoglobulin, plasmapheresis or both, but the prognosis was poor. One case required mechanical ventilation, and two patients who died showed no response to the treatment. Further therapeutic approach is needed.

Conclusions

✔ GBS occurs rarely in patients after allo-HSCT but the prognosis was very poor.

✔ In addition to viral infections, calcineurin inhibitors or GVHD induced immune responses might be attributable causes of GBS.

References

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3. Journal of the Neurological Sciences 2010; 292: 114-6
4. Transpl Infect Dis 2005; 7: 93-6

Acknowledgement

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