Bone Marrow Transplant in MDS

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• No conflict of interest to disclose
Bone Marrow

• Soft part of bone that acts a factory
  • Red cells
  • White cells
  • Platelets
Bone Marrow Transplant

- Blood cancers (AML, MDS, etc) do not allow the factory to function properly
- A BMT replaces unhealthy cells with healthy cells
- Two types: Autologous and Allogeneic
  - Auto: Own cells
  - Allo: Donor cells
• Allogeneic hematopoietic stem cell transplant (Allo-hsct) is the only curative approach for MDS patients
• Cure is not guaranteed though
• It is associated with high risk of severe and life threatening complications
• Disease
• Patient
• Donor
• Initial transplant period
• Late transplant period
<table>
<thead>
<tr>
<th>R-IPSS Category</th>
<th>Median Survival (years)</th>
<th>25% AML progression (years)</th>
<th>Transplant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low</td>
<td>8.8</td>
<td>Not reached</td>
<td>No Allo HSCT</td>
</tr>
<tr>
<td>Low</td>
<td>5.3</td>
<td>10.8</td>
<td>No Allo HSCT</td>
</tr>
<tr>
<td>Intermediate</td>
<td>3.0</td>
<td>3.2</td>
<td>Allo HSCT if acceptable risk</td>
</tr>
<tr>
<td>High</td>
<td>1.6</td>
<td>1.4</td>
<td>Allo HSCT</td>
</tr>
<tr>
<td>Very High</td>
<td>0.8</td>
<td>0.7</td>
<td>Allo HSCT</td>
</tr>
</tbody>
</table>
Patient

- Age
- Performance status
- Reliable and dedicated caregiver
- Other medical conditions
  - Heart
  - Lung
  - Kidney
  - Liver
  - Infection
  - Stroke
Donor

- Best match donor
  - Prevent rejection
  - Keep MDS under control
  - Minimize GVHD
Donor

1. Matched sibling donor (30%)
2. Matched unrelated donor (50-60%)

3. Haplo-identical donor
3. Cord Blood
Initial Transplant Period

- Admission
- High dose of chemotherapy
- Stem cell infusion (Day 0)
- Neutropenic period
- Engraftment
- Discharge
- Hospital stay of 3-4 weeks (if all goes well)
Initial Complications

• Complications of chemotherapy
  • Nausea, vomiting, diarrhea, mucositis, fatigue, hair loss, etc
• Complications of low counts
  • Infections, fatigue, bleeding, bruising

We anticipate this and support you through this
Late Transplant Period

• Stay close by for at least 100 days
  • Monitor for late infections
  • Monitor for GVHD
Graft vs. Host Disease (GVHD)

• Donor cells = Graft
• Patient = Host
• MDS = Leukemia/tumor

• We want Graft vs. Leukemia effect
• We do not want Graft vs. Host disease
GVHD

- Donor cells misbehave
- Identify the host as foreign
- Attack the host
GVHD

- Skin
- Liver
- GI
- Lungs
- Eyes
- Mouth
GVHD

• Early = acute GVHD
• Late = chronic GVHD

• Chances of happening: 30-50%

• Spectrum: Mild (rash)---------- Life threatening (liver failure, end stage lung disease, etc)
GVHD

- Medicines to prevent GVHD
- GVHD still occurs
- These medicines need strict monitoring after discharge
- Taper by day 100 if no GVHD
- Treatment is mainly steroids
Outcomes

• Best outcome: Disease controlled and some GVHD
Outcomes

• Disease relapse
Outcomes

• Non-relapse mortality
• Transplant-related mortality
• Risk vs. benefit