Abstract

Since 2005 to December 2014, 75 children with hematological malignancies underwent a total of 70 haploSCT using CD3/CD19-depleted allografts. Nineteen haploHSCT (12±5%) were performed using reduced-intensity conditioning. Donors were mobilized with filgrastim 10 μg/kg/day x 4 days. CD3/CD19 depletion was performed using the Clinimacs (Roche Diagnostics) device. The final purified product was infused on day 0.

Results

**Hematopoietic engraftment**

| Days to neutrophil engraftment | 13 (7-21) |
| Days to platelets ≥ 20 x 10^3 | 10 (5-76) |
| Days to platelets ≥ 50 x 10^3 | 13 (5-50) |
| Days to platelets ≥ 100 x 10^3 | 15 (5-279) |

**Supportive care**

| Red blood cells days | 2 (8-21) |
| Platelets days | 3 (8-40) |
| Parenteral nutrition days | 0 (8-48) |
| Fever days | 0 (8-55) |
| Antithymic days | 12 (9-46) |
| Hospitalization days | 15 (10-41) |

**Complications**

- Acute GVHD (any grade): 36 ± 6%
- Chronic GVHD: 46 ± 7%
- Graft failure: 13 ± 4%
- NRM (day +100): 10 ± 4%
- Overall NRM: 23 ± 5%

**Immune reconstitution**

<table>
<thead>
<tr>
<th>Immune reconstitution</th>
<th>CD3</th>
<th>CD4</th>
<th>CD8</th>
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<tbody>
<tr>
<td>Tdt+CD19+</td>
<td>13 ± 10%</td>
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<tr>
<td>CD3+CD4+</td>
<td>20 ± 10%</td>
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<td>CD3+CD8+</td>
<td>14 ± 10%</td>
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**Relapse**

32 ± 6%

**DFS**

52 ± 6%

Donors were mobilized with filgrastim (10 μg/kg/day x 4 days). CD3/CD19 depleted PCs were collected using the Cobe Spectra cell separator (Fenwal-BCT). CD3+CD19 depletion was performed using the Clinimacs (Roche Diagnostics) device. The final purified product was infused on day 0.

**Conclusions**

1) **HAPLOIDENTICAL TRANSPLANTATION USING TCDB IS ASSOCIATED WITH ENCOURAGING RESULTS ESPECIALLY IN PATIENTS IN EARLY PHASE OF DISEASE.**

2) **KIR B HAPLOTYPE DONORS CONFER A RAPID NK CELLS EXPANSION EARLY AFTER TRANSPLANTATION, RESULTING IN LOWER PROBABILITY OF RELAPSE AND GIVING A GVL EFFECT APART FROM GVHD.**

3) **HOWEVER, THE INCIDENCE OF SEVERE VIREAL INFECTIONS IS THE MAIN PROBLEM TO OVERCOME, WITH 18±10% OF INFECTED PATIENTS (IN ADOLESCENTS) AND IMPROVING RESULTS.**

**Donors**

| Age (years) | 40 (2-54) |
| Gender | 25 male/50 female |
| Mother/Father | 48/18 |
| KIR match | 35 y/30 a |
| KIR haplotype | A: 56 B |
| Cell composition | CD3+ /10^9 kg | 7.8±1 (19-41.6) |
| CD4+ /10^9 kg | 10.5 (1-156) |
| CD8+ /10^9 kg | 24.6 (4-57.141.3) |

**References**


Background

Newlydi, haploidentical hematopoietic stem cell transplantation using T-cell depleted grafts is an option for pediatric patients with hematological malignancies in need an allogeneic transplantation and this option is in HLA-identical donor. CD3/CD19 depletion as graft manipulation method retain large numbers of important immune cells in the graft as well.

However, few papers have been reported addressing prognostic factors and outcomes.

Transplants (n=75) Patients (n=70)

- **Age (9 years < patients < 19 years):**
  - Gender: 48 (male) 27 (female)
  - Weight (Kg): 30 (6.5-79)
  - Length (cm): 98 (45-110)
  - Diagnoses: AML-MHD.MM.
  - Disease status:
    - 1st CR: 19
    - 2nd CR: 30
    - Not in remission: 12
  - Transplant number:
    - 1st: 41
    - 2nd: 22
    - 3rd: 2
  - Median follow-up: 22 months (1-180)

Donors

- **Age (years):**
  - Gender: 25 male/50 female
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  - KIR match: 35 y/30 a
  - KIR haplotype: A: 56 B 6
  - Cell composition:
    - CD3+ /10^9 kg: 7.8±1 (19-41.6)
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    - CD8+ /10^9 kg: 24.6 (4-57.141.3)

Methods

Since 2005 to 2014, pediatric patients diagnosed of high-risk hematological malignancies with transplantation criteria and "good" clinical condition were included in the study protocol. Patients do not have time to be waiting for exercising a high resolution-MRD or lack of MUD.

Primary "enallo" is disease-free survival and factors affecting DFS. Secondary "enallo" are engraftment kinetics, immune reconstitution, NRM and relapse incidence. Analyses were performed using log-rank test and Cox regression model. Pediatric patients were conditioned with fludarabine, busulfan and thiotepa regimen.