

EHA-ISHBT Hematology Tutorial

Session 12: Overview Of Stem Cell
Transplantation - Focus on Haplo-identical SCT

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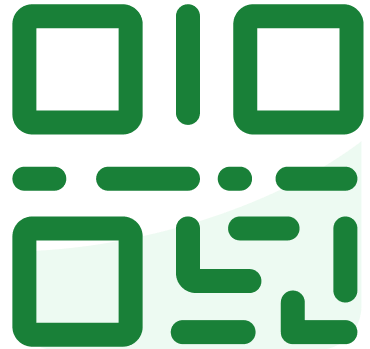
| Case

- 12 year old female child
- Diagnosed with ALL in 2018, Intermediate risk, treated with BFM 2002,
- MRD negative at day 33/ 78
- Hepatitis B infection diagnosed and treated with entecavir
- On maintenance from Nov. 2018
- Relapsed in Feb. 2023, treated with inotuzumab + mini Hyper CVAD × 1 cycle
- Developed an episode of fungal pneumonia post chemo
- Family history: One half sister, Mother haploidentical , No MUD donor available

Questions can be answered by scanning the QR on your phone to access Slido.

For each question you have 15 seconds.

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| Q1) How would you treat this patient?

1. Continue chemotherapy
2. Continue MUD search
3. Cord blood transplant
4. Look for option of CAR-T Cell therapy
5. Proceed with haploidentical donor HSCT

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12.31 How would you treat this patient?

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| Case

- Admitted for allogeneic haplo-donor stem cell transplantation
- Mother 6/12 match,
- Blood group match,
- CMV – Reactive,
- HBV DNA undetectable with normal LFT
- High resolution CT chest – Resolution of pneumonitis
- Single Antigen Bead (SAB) for Donor Specific Anti-HLA (DSA) positive against HLA – B (mean fluorescence intensity (MFI) 2233)

| Q2) What is the acceptable donor specific antibody titre?

1. MFI < 1000
2. MFI < 2000
3. MFI < 3000
4. MFI 3000 - 5000
5. Do not perform Haplo-HSCT if DSA positive

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12.32 What is the acceptable donor specific antibody titre?

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Q3) What is your choice of conditioning and GvHD regimen in this patient?

1. T-Cell replete Haplo – non-myeloablative (NMA) with Flu-Cy-TBI – post-transplant cyclophosphamide (PTCy)/Tacrolimus(Tac)/mycophenolate mofetil (MMF)
2. T-Cell replete – Myeloablative(MA) regimen with TBI – PTCy/Tac/MMF
3. Myeloablative regimen without TBI – PTCy/Tac/MMF
4. Reduced Intensity Conditioning – PTCy/Tac/MMF
5. T-Cell deplete Haplo with MA regimen – sirolimus/MMF

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12.33 What is your choice of conditioning and GvHD regimen in this patient?

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| Case

- No desensitization
- Chosen mother as Haplo-donor for T-cell replete Haplo
- Conditioning regimen – Treosulphan – fludarabine – thiotepa – thymoglobulin
- GvHD prophylaxis – PTCy – Tac – MMF

| Q 4) What is the preferred source of graft in Haplo HSCT?

1. G-CSF mobilised peripheral blood stem cells (PBSC)
2. G-CSF Mobilised bone marrow (BM)
3. G-CSF Mobilised PBSC + BM
4. Plerixafor mobilised PBSC
5. Plerixafor mobilised BM

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12.34 What is the preferred source of graft in Haplo HSCT?

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| Case

- Patient received G-CSF mobilised PBSC (CD34 cell dose 9.36×10^6 cells/Kg).
- Patient developed cytokine release syndrome (CRS) from day +1 onward.
- GvHD prophylaxis was given with PTCy on day +3 & day +4 followed by tacrolimus/MMF

| Case

- Patient had neutrophil engraftment on day +13 and platelet engraftment on day +16.
- Patient was discharged on day +20 and day +28 chimerism was 100%
- CMV reactivation was observed on day 30 and treated with IV ganciclovir
- MMF tapering started from day +30 onward.
- There was no GvHD observed


| Q5) What CMV prophylaxis is recommended?

1. High dose acyclovir or valacyclovir
2. Gancyclovir or valgancyclovir
3. Letermovir
4. Do not use any CMV prophylaxis
5. T-Cell deplete Haplo with MA regimen – Sirolimus/MMF

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12.35 What CMV prophylaxis is recommended?

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| Case

- Day +60 chimerism was 99.37%
- There was no GvHD observed, thus tacrolimus tapering started from day +75
- Day +100 chimerism fallen to 94.5%
- Bone marrow exam showed morphological remission but flow MRD positive

| Q6) How would you approach this MRD positivity?

1. Chemotherapy
2. Inotuzumab or blinatumomab
3. Donor Lymphocyte Infusion
4. Send for CAR-T Cell therapy
5. Second transplant

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12.36 How would you approach this MRD positivity?

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| Discussion

- Donor selection in Haplo HSCT
- Desensitization for high titre Donor Specific Antibodies
- How to optimize GvHD prophylaxis in high-risk Leukemia
- DLI in Haplo HSCT

| References

- Shannon R. McCurdy, Leo Luznik. How we perform haploidentical stem cell transplantation with posttransplant cyclophosphamide. *Blood* 2019; 134 (21): 1802–1810.
- Dholaria B, Savani BN, Mohty M *et al*. Clinical applications of donor lymphocyte infusion from an HLA–haploidentical donor: consensus recommendations from the Acute Leukemia Working Party of the EBMT. *Haematologica*. 2020 Jan;105(1):47–58.
- Krummey SM, Gareau AJ. Donor specific HLA antibody in hematopoietic stem cell transplantation: Implications for donor selection. *Front Immunol*. 2022 Aug 5;13:916200.