



Outcomes of Allogeneic Stem Cell Transplant in Chronic Myeloid Leukemia Blast Phase: A Single Center Experience from South India

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Background

- Blast phase (BP) remains a significant challenge in the treatment of chronic myeloid leukemia (CML)
- Allogeneic stem cell transplant (AlloSCT) remains the best chance of cure for BP, with 3-year survival ranging from 35–40%¹
- Outcomes are better when AlloSCT is performed after reverting back to chronic phase¹

Objective

- Treatment related Mortality (TRM)**
- Survival**
- Leukemia-free survival (LFS): Time from the AlloSCT to relapse or death due to any cause.
- Overall survival (OS): Time from AlloSCT to death due to any cause

Materials & Methods

- Patients or Other Participants:** All CML-BP (WHO criteria) patients who underwent AlloSCT at our center
- Interventions:** Myeloablative conditioning and stem cells harvested from peripheral blood
- Design:** Retrospective

Summary

- AlloSCT resulted in promising survival for carefully selected patients of CML-BP, especially with a matched sibling donor.

Discussion

- AlloSCT is an unmet need for most the CML-BP patients due to various reasons (Economic constraints, Limited resources, Donor availability)²
- Most common cause of TRM is infection. Multidrug-resistant gram negative bacterial infection is a major problem across all transplant centres in India, contributing to early deaths and poor outcomes³
- The adverse outcome of HID transplant underscores the need for careful donor selection and reflects the initial learning curve
- Despite all the challenges, we have observed an encouraging two-year OS of 57% in our small cohort

Results

TRM: 43%; 2 year LFS: 43%; 2 year OS: 57%

48 CML-BP patients registered in our transplant clinic. Among them only 7 patients (16%) had AlloSCT due to various reasons [1.Patient related factors (Most common cause): socioeconomic constraints, Poor family support, fear of toxicity, stigma, mortality, 2. Progressive disease 3. Difficulties in donor availability, 4. Limited resources]; Table 1 summarizes the pre and post transplant course of all patients (N=7)

Patient	Age/Se x	Time from diagnosis to transplant (Months)	Pre- Transplant Response	Donor (type/sex)	Conditioning Regimen;	GVHD Prophylaxis	Graft failure	VOD	Post-transplant Response (D-100)	Acute GVHD	Chronic GVHD	Relapse	Survival status at LFU
P1	47y/m	4	CHR	MSD, Male	Cy-Bu4	CSA+MTX	no	yes	CCyR (D30)	No Yes*	NA	No	Died (Day 44)
P2	9Y/M	6	CCyR	HID, Male	Flu-Bu4	PTCY+Tac+ MMF	No*	No	DMR	(Grade 4) Yes*	No	No	Died (Day 174)
P3	49Y/M	12	CCyR	MSD, Male	Flu-Bu4	CSA+MTX	No	No	MMR	(Grade 2)	Yes (Mild)	No	Alive (Day 842)
P4	40Y/F	4	CCyR	MSD, Male	Flu-Bu4	CSA+MTX	No	No	DMR	No	No	Yes CNS (d494)	Alive (Day 801)
P5	52Y/M	3	CCyR	MSD, Male	Flu-Bu4	CSA+MTX	No	No	DMR	No	No	No	Alive (Day 716)
P6	26Y/F	7	MMR	MMSD, Male	Flu-Bu4	PTCY+Tac+ MMF	No	Yes	DMR	No	No	No	Alive (Day 672)
P7	31Y/M	11	CCyR	HID, Male	Flu-Bu4	PTCY+Tac+ MMF	Yes# (d24)	No	Unknown (D30)	No	NA	No	Died (Day 65)

*D84 had poor graft function, which was followed by stem cell (CD34) boost on d102 – this was followed by acute grade 4 GVHD and death on d174 #Patient had secondary graft failure

Abbreviations: CCyR: complete cytogenetic response, CHR: Complete hematological response, CNS: Central Nervous System, CSA: Cyclosporine, Cy-Bu4: Cyclophosphamide and Busulphan, DMR: Deep Molecular response, Flu-Bu4: Fludarabine –Busulphan; GVHD: Graft versus host disease, HID: Haploidentical donor, LFU: Last follow up, MMF: Mycophenolate Mofetil, MMR: Major molecular response, MMSD: Mismatched sibling donor, MSD: matched sibling donor, MTX: Methotrexate, VOD=Veno-occlusive disease, PTCY: Posttransplant Cyclophosphamide, Tac: Tacrolimus,

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