Transplant Outcomes and Rates of Graft-Versus-Host Disease for FLT3-ITD AML by Graft Source in the Era of Post-Transplant Gilteritinib Maintenance

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Introduction

- Allogeneic hematopoietic cell transplantation (alloHCT) is recommended for FLT3-ITD AML
- Gilteritinib maintenance reduces relapse for patients with detectable peri-transplant FLT3-ITD measurable residual disease (MRD)
- To start post-alloHCT gilteritinib maintenance, patients need to be free of significant GVHD
- Peripheral blood stem cell (PBSC) graft source has a higher risk of GVHD than bone marrow (BM)
- How graft source influences the ability to deliver gilteritinib maintenance post-alloHCT is unknown

Aim

To assess the impact of graft source on rates of acute and chronic GVHD and GVHD-free, relapse-free survival (GRFS) in patients with FLT3-ITD AML and the ability to deliver gilteritinib maintenance

Methods

Single center retrospective real-world analysis

Inclusion criteria:

- Adults with FLT3-ITD AML in complete remission
- Receiving reduced intensity conditioning alloHCT with post-transplant cyclophosphamide (2016-2024)

Exclusion criteria:

- Myeloablative conditioning
- TP53 mutation
- Sorafenib maintenance

Outcomes were compared by graft source:

- Cumulative incidence of acute and chronic GVHD and relapse by competing-risk analysis
- GRFS and overall survival by Kaplan-Meier method with multivariable Cox models to control for differing baseline characteristics
- Rates of gilteritinib initiation post-alloHCT

Results

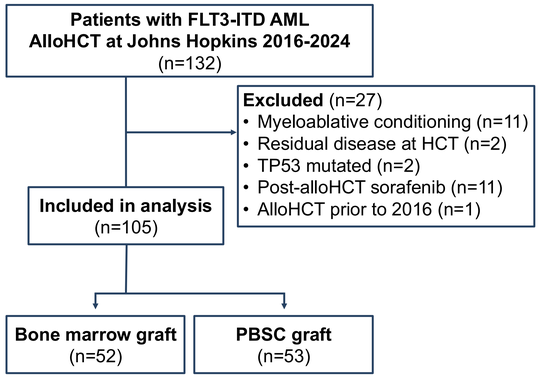
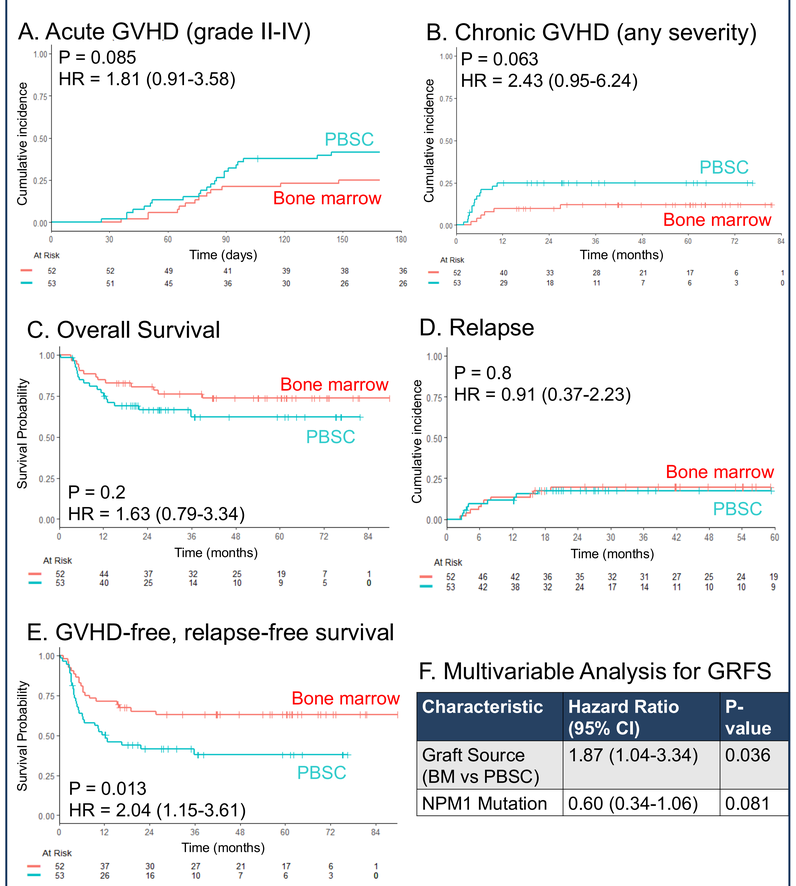


Table 1. Baseline Characteristics

Characteristic	Bone Marrow N = 52	PBSC N = 53
Age	59 (22-76)	60 (21-75)
Male	25 (48%)	25 (47%)
WBC at diagnosis	77 (1-349)	34 (1-438)
ELN 2022 Risk • Favorable • Intermediate • Adverse	 1 (1.9%) 43 (83%) 8 (15%)	 0 35 (66%) 18 (34%)
MDS-related mutations	3 (5.8%)	9 (17%)
NPM1 mutation	39 (75%)	30 (57%)
Intensive induction	47 (90%)	48 (91%)
AlloHCT in CR1	49 (94%)	42 (79%)
Year of BMT	2020 (2016-2024)	2022 (2017-2024)
Karnofsky Score	90 (80-100)	90 (70-100)
HCT-CI Score	1 (0-9)	2 (0-6)
Donor Type • Haploidentical • mMUD • MRD • MUD	 44 (85%) 5 (9.6%) 2 (3.8%) 1 (1.9%)	 23 (43%) 15 (28%) 5 (9.4%) 10 (19%)

Data: Median (Min-Max); n (%)



F. Multivariable Analysis for GRFS

Characteristic	Hazard Ratio (95% CI)	P-value
Graft Source (BM vs PBSC)	1.87 (1.04-3.34)	0.036
NPM1 Mutation	0.60 (0.34-1.06)	0.081

Figure 1: A. cumulative incidence of acute GVHD (grade II-IV), B. cumulative incidence of chronic GVHD (any severity), C. overall survival, D. cumulative incidence of relapse, E. GVHD-free, relapse-free survival, F. multivariable Cox model for GRFS by graft source controlling for NPM1 status.

Table 2. Gilteritinib Maintenance by Graft Source

Characteristic	Bone Marrow N = 52	PBSC N = 53	P-value
Post-HCT FLT3 Inhibitor • Gilteritinib • None • Unknown (on trial)	 41 (79%) 5 (9.6%) 6 (12%)	 34 (64%) 18 (34%) 1 (1.9%)	0.002

Table 3. Reason for Gilteritinib non-initiation	Bone Marrow 5/46 (11%)	PBSC 18/52 (34%)
GVHD	**1 (20%)**	**8 (44.4%)**
Cytopenias/graft failure	1 (20%)	5 (27.8%)
Severe infection +/- early relapse/death	2 (40%)	4 (22.2%)
Negative FLT3-ITD MRD	0	5 (27.8%)
Unknown	1 (20%)	3 (16.7%)
Patient declined	0	1 (5.6%)

Conclusions

- BM grafts trended toward less acute and chronic GVHD compared to PBSC grafts
- GRFS was improved among patients receiving BM vs PBSC grafts, which remained significant after controlling for the difference in NPM1 mutation status between groups
- More patients receiving BM vs PBSC grafts initiated gilteritinib maintenance after alloHCT
- GVHD was a more frequent reason for non-initiation of gilteritinib among patients receiving PBSC grafts

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