



مستشفى الملك فيصل التخصصي ومركز الأبحاث
King Faisal Specialist Hospital & Research Centre

Allogeneic Transplantation in First Complete Remission Mitigates High-Risk Disease Biology in AYA Acute Lymphoblastic Leukemia Treated with Pediatric-Inspired Protocols: A Real-World Comparative Study

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KEY MESSAGE

Although the allo-SCT cohort had substantially higher-risk biology and poorer early response, relapse, PFS, and OS were comparable with chemotherapy alone.

BACKGROUND

The optimal consolidation strategy for adolescents and young adults (AYA) with acute lymphoblastic leukemia (ALL) remains controversial, particularly the role of allogeneic stem cell transplantation (allo-SCT) in first complete remission (CR1) within pediatric-inspired regimens.

This study evaluated real-world outcomes of the AYA-15 protocol, comparing allo-SCT in CR1 with chemotherapy alone.

METHODS

Retrospective AYA-15 cohort | n = 166

Chemotherapy only

n = 144

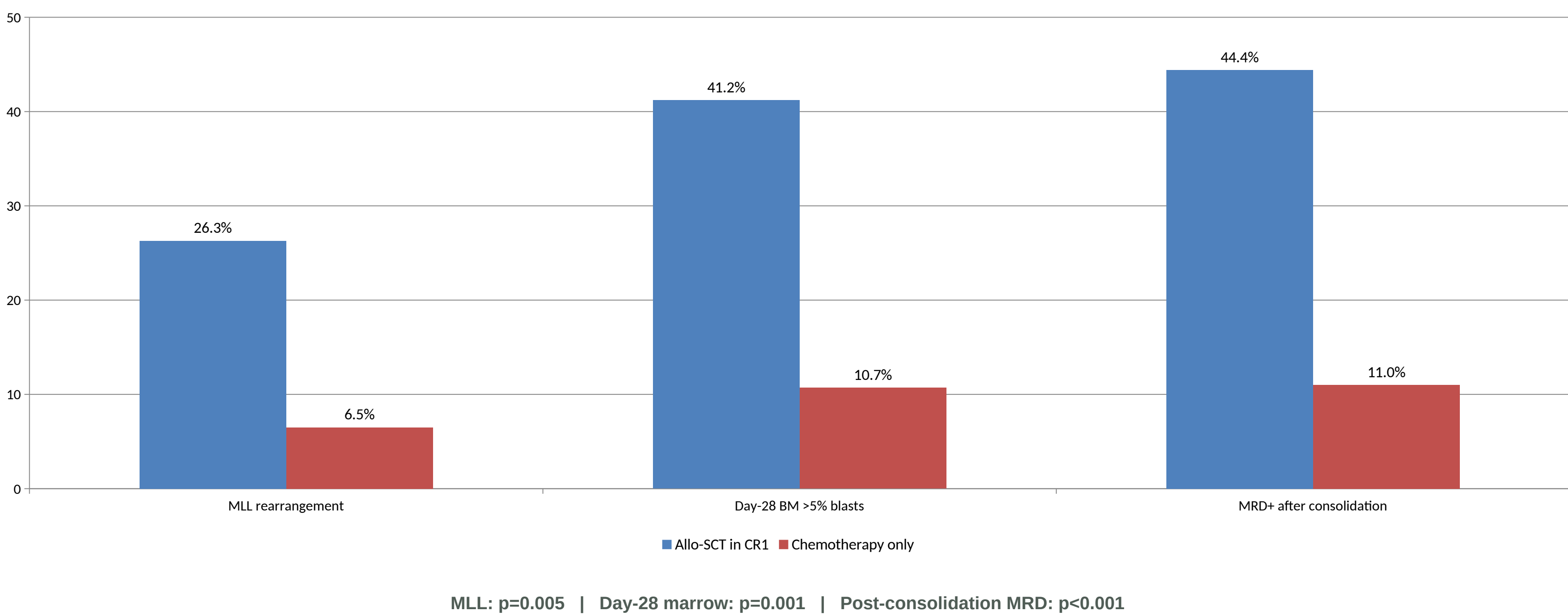
Allo-SCT in CR1

n = 22

- Baseline characteristics
- Day-14 and day-28 bone marrow response
- MRD after consolidation ($\geq 0.01\%$)
- Relapse rate, PFS, and OS
- Mann-Whitney U testing for continuous variables
- Survival compared using log-rank testing

RESULTS: HIGH-RISK FEATURES

Patients proceeding to allo-SCT in CR1 had significantly more adverse disease features.



RESULTS: RELAPSE

Allo-SCT in CR1

18.2%

Chemotherapy only

16.0%

p = 0.794 | no significant difference

SURVIVAL OUTCOMES

No statistically significant difference between groups

PROGRESSION-FREE SURVIVAL

Comparable

Log-rank p = 0.926

OVERALL SURVIVAL

Comparable

Log-rank p = 0.711

INTERPRETATION

The allo-SCT cohort had worse prognostic biology and poorer early response, but did not experience the excess relapse or inferior survival that would ordinarily be expected.

This pattern is consistent with a risk-adapted therapeutic benefit from transplantation in selected high-risk patients.

CONCLUSION

In this real-world cohort, allo-SCT in CR1 was preferentially utilized in patients with high-risk disease features and adverse early response.

Despite this, relapse, PFS, and OS were comparable with chemotherapy alone, suggesting that allo-SCT may mitigate poor prognostic biology.

These findings support the continued role of transplantation in selected high-risk AYA ALL patients treated with pediatric-inspired protocols.

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