LONG-TERM SURVIVAL AFTER SECOND ALLO-HCT IN ACUTE LEUKEMIA: A SINGLE-CENTER EXPERIENCE

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Introduction

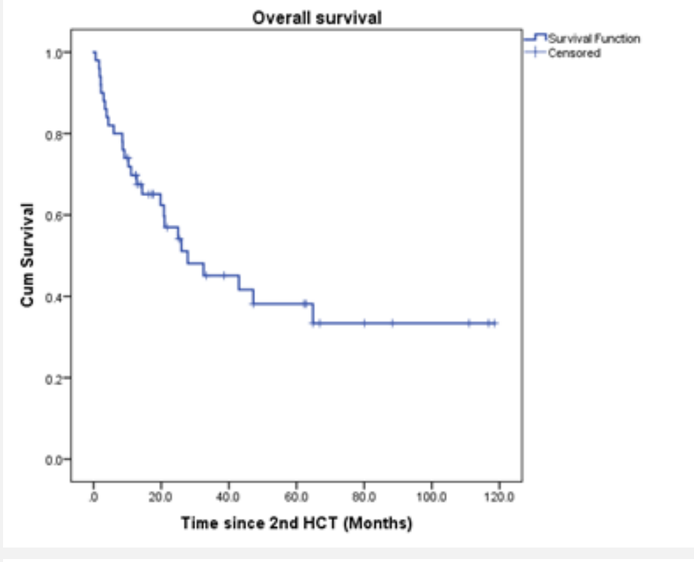
Second allogeneic hematopoietic stem cell transplantation (allo-HCT) is considered a potential curative strategy for relapsed or refractory acute leukemia patients who relapse after an initial transplant. However, outcomes following a second allo-HCT remain variable and poorly defined. This study evaluates survival outcomes, relapse patterns, and the impact of pre-transplant remission duration in a single-center cohort

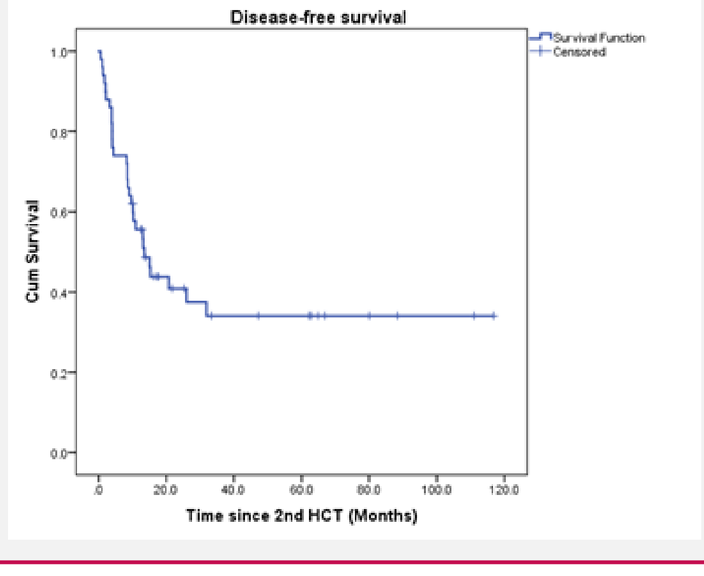
Methods

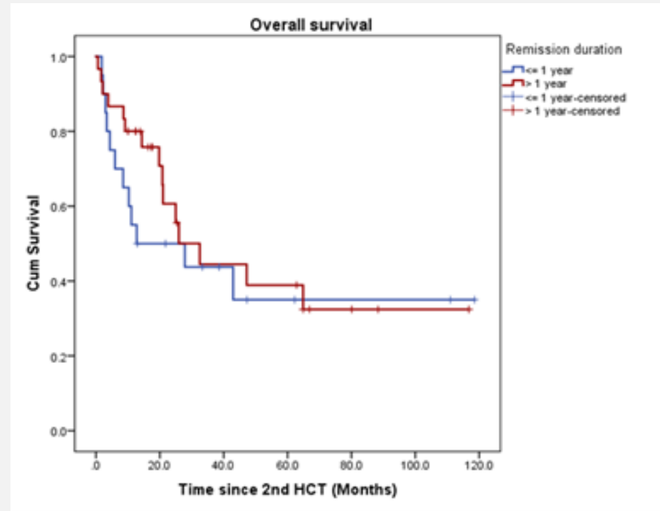
A retrospective analysis was conducted on 50 patients with acute leukemia who underwent a second allo-HCT. Median age was 34 years (range: 14–64), and 54% were male. Diagnoses included AML (64%), APL (10%), B-ALL (18%), T-ALL (4%), and Ph+ ALL (4%). Pre-second transplant remission duration was ≤1 year in 40% and >1 year in 60% of patients. Kaplan-Meier survival analysis was performed for overall survival (OS) and disease-free survival (DFS), with subgroup comparisons based on remission duration.

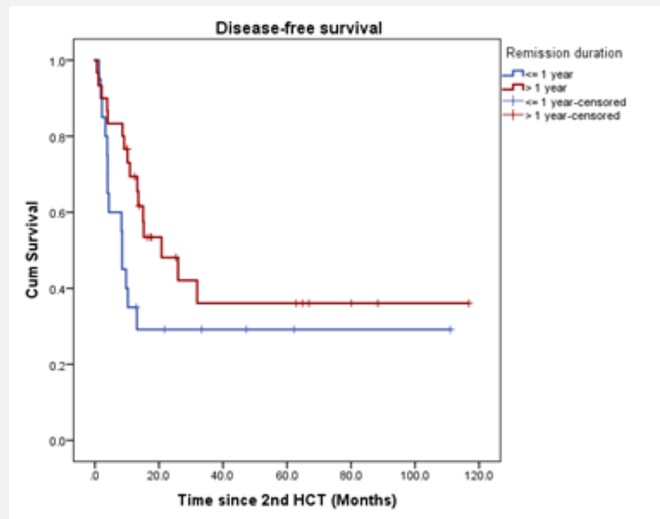
Results

With a median follow-up of 52.97 months, the median OS was 27.83 months (95% CI: 5.76–49.90), and the median DFS was 13.57 months (95% CI: 8.39–18.74). One-year OS and DFS rates were approximately 65% and 57%, respectively. Patients with pre-transplant remission duration >1 year demonstrated improved median OS (32.53 vs. 12.75 months) and DFS (20.83 vs. 8.51 months) compared to those with ≤1 year, though differences did not reach statistical significance (Log-rank p = 0.491 for OS, p = 0.095 for DFS). Acute GVHD occurred in 20% and chronic GVHD in 20% of patients. At last follow-up, 46% were alive in remission.









Discussion

A second allogeneic transplant offers meaningful survival for selected adults with relapsed acute leukemia. Outcomes are best in patients with longer first remissions and disease control at the second procedure. Survival has improved over time, particularly when myeloablative conditioning is used in fit patients, as it reduces relapse without adding excess toxicity.

Donor switching provides no clear survival advantage; matched donors remain preferable, while haploidentical transplants may increase non-relapse mortality. Compared with salvage chemotherapy, a second transplant yields superior survival in appropriate candidates.

Future directions include incorporating targeted maintenance strategies. Agents such as FLT3 inhibitors have shown promise in reducing relapse risk after transplantation and may be extended to the second-transplant setting.

Conclusions

Second allo-HCT in selected acute leukemia patients offers a reasonable chance of long-term survival, particularly in those with longer remission prior to re-transplantation. While pre-transplant remission duration trended towards better outcomes, statistical significance was not observed, underscoring the need for larger studies to refine patient selection criteria and improve prognostication.

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