

LONG-TERM OUTCOME OF PATIENTS WITH GRAFT FAILURE AFTER ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION. RESULTS OF A SINGLE CENTER ANALYSIS

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Introduction: Failure to achieve sustained donor hematopoietic cell engraftment is a rare but life-threatening complication of allotransplant with poor survival outcomes. The long-term outcome of graft failure after allogeneic Hematopoietic cell transplantation (alloHCT) has not been well described.

Methods: This is a retrospective analysis of patients with graft failure over a 10-year time period at KHCC. Patients-disease, - and transplant-related characteristics were retrieved center database. Subjects were included for analysis if they had failed to achieve an absolute neutrophil count $\geq 500/\text{mL}$ by 28 days post-alloHCT (primary graft failure-PGF); had a decrease ANC to $< 500/\text{mL}$ for 3 consecutive days after having achieved neutrophil engraftment (secondary graft failure-SGF); or failed to have evidence of $\geq 5\%$ donor cell cells (PGF with autologous reconstitution).

Results: Among 519 patients who received allografts June 2, 2013-August 8, 2023, 17 identified with graft failure. The median recipient age 30 y (20-66y) and donor 28y (17-54y). 58.8% female (n=10). 11 subjects (64.7%) with nonmalignant. 6 subjects (35.3%) had major ABO incompatibility. 12 subjects (70.6%) received ablative conditioning, and 8 (47.1%) received blood graft. The graft was MRD in 16 subjects (94.1%). All subjects received conventional GvHD prophylaxis. The median CD 34 dose was 5.35×10^6 (0.67, 15).

12 subjects (70.6%) engrafted by day-28. 5 subjects had PGF; 8 SGF and one with autorecovery at a median follow up of 26.3 d (0.9, 92.2 d). Neutrophils engrafted at a median of 15.5 d (12,21d) and platelets at 21.5 d (16,36d). One subject recovered his counts but subsequently developed pure red cell aplasia for which he received CD34 boost then second allograft. 2 had aGVHD, and 16 subjects had at least one episode of viral reactivation (CMV, EBV or BKV). One subject with SGF died after the first allograft.

14 subjects received second allograft at a median time from the first allograft of 156.5d (36,1842d). 5 allografts for PGF and 8 for SGF, one for PRCA. 100 day TRM) 50% (n=7). At a median follow up of 14.5 mo (0-100.23mo), 8 subjects have died, 7 due to infections, one due to relapse. 1 and 5-year OS 46% (0.25-0.83) and 23% (0.05-1.00). There was no statistically significant difference in survival outcomes if primary or secondary graft (P=0.51).

Conclusion: graft failure is an uncommon complication post-alloHCT and is associated with poor outcomes.