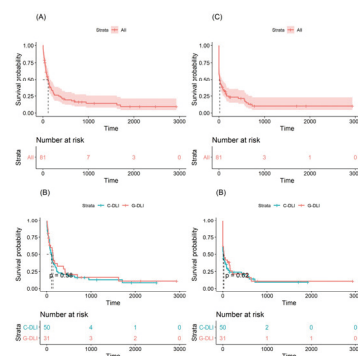


Outcome comparison of the conventional and G-CSF primed donor lymphocyte infusion in relapsed AML

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Background/Aims: For patients with acute myeloid leukemia (AML) undergoing allogeneic hematopoietic stem cell transplantation (alloSCT), relapse remains the major cause of treatment failure. Donor lymphocyte infusion (DLI) is deemed an effective therapy for relapsed AML after transplantation. Given the efficacy of DLI, many centers have opted the method of cryopreserving excess cells at the time of transplant infusion for possible later use. However, the development of graft-versus-host disease (GVHD) after DLI remains an obstacle to successful DLI and the cell source of DLI has been a topic of contention. In this study, we aimed to compare the efficacy and safety of G-CSF mobilized cells (G-DLI) with conventionally collected DLI (C-DLI).

Methods: This was a retrospective longitudinal cohort study of AML patients undergoing both G-DLI and C-DLI between January 2001 and December 2017 at Seoul National University Hospital. Relapsed AML patients who underwent DLI from 2001 to 2017 in Seoul National University Hospital. We analyzed factors including overall survival (OS), cell counts, disease status at cell therapy, and GVHD development. Our primary outcome was to compare overall survival after DLI between conventional DLI group and G-CSF primed DLI group. The data available up to July 2019 were used. **Results:** A total of 81 patients (50 C-DLI versus 31 G-DLI) were enrolled for assessment of clinical outcomes representative of immunological outcomes of DLI. A total of 81 patients were analyzed. There was no difference in the age (43.8 vs. 46.9), sex, cytogenetic risk, conditioning regimen and CD3 cell count ($1.043 \times 10^8/\text{kg}$ for C-DLI vs $0.768 \times 10^8/\text{kg}$ for G-DLI, p-value=0.3188) between the 2 groups. Median CD34 cell dose was $2.34 \times 10^6/\text{kg}$ in G-DLI group. There was no difference in OS between the two groups (median OS 106 days for C-DLI and 139 days for G-DLI group, p-value 0.58). And there was no difference in relapse free survival between the two groups (median RFS 11.5 days for C-DLI and 28.0 days for G-DLI group, p-value 0.62). Newly developed GVHD occurred in 44% in C-DLI group and 41.9% in G-DLI group. **Conclusions:** In conclusion, G-DLI appears to be a safe and equally efficacious substitute for C-DLI.



Characteristic	ALL	C-DLI	G-DLI	P
Characteristics	50 (61.7%)	25 (31.3%)	26 (32.7%)	
Age (median, range)	43.8 (14.2-67.5)	43.8 (14.2-67.5)	46.9 (14.4-81.8)	0.092
Sex (male, %)	34 (68.0%)	21 (84.0%)	11 (42.3%)	0.201
Cytogenetic risk				0.823
Low	11 (22.0%)	9 (36.0%)	4 (15.4%)	
Intermediate	46 (92.0%)	28 (112.0%)	18 (69.6%)	
High	22 (44.0%)	13 (52.0%)	9 (34.6%)	
Conditioning regimen				0.484
MAC	23 (46.0%)	17 (68.0%)	8 (30.8%)	
TBIC or BEC	27 (54.0%)	13 (52.0%)	21 (81.2%)	
Donor type				0.842
Sibling, F1D	11 (22.0%)	14 (56.0%)	18 (69.2%)	
Non-sibling, F1D	18 (36.0%)	18 (72.0%)	4 (15.4%)	
Non-sibling, F1D	4 (8.0%)	3 (12.0%)	3 (11.5%)	
Staple identical	4 (8.0%)	3 (12.0%)	3 (11.5%)	
Transplant at alloSCT				0.368
CR1 or CR2	18 (36.0%)	14 (56.0%)	24 (92.3%)	
Admixed	23 (46.0%)	13 (52.0%)	7 (27.3%)	
Interval from alloSCT to relapse (median, range)	124 (14.4-496)	123 (14.4-496)	161 (18.3-310)	0.170
Interval from relapse to DLI (median, range)	181 (14.4-310)	188 (18.3-310)	181 (18.3-310)	0.151
GVHD at relapse?				0.913
DLI at DLI	18 (36.0%)	11 (44.0%)	7 (27.3%)	
Cytoreduction	12 (24.0%)	12 (48.0%)	28 (108.0%)	0.791
Transfusion	4 (8.0%)	3 (12.0%)	3 (11.5%)	
Stem cell	23 (46.0%)	17 (68.0%)	8 (30.8%)	
Chemotherapy before DLI	76 (92.0%)	47 (188.0%)	28 (108.0%)	0.954