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Autologous versus allogeneic hematopoietic stem cell transplantation (SCT) for peripheral T-cell lymphomas (PTCLs): Japan and Korea cooperative study with 330 patients

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Background: To evaluate the role of autologous and allogeneic SCT in the treatment of PTCLs, Japan Study Group for Cell Therapy and Transplantation conducted a multicenter retrospective survey in Japan and Korea.

Methods: After excluding patients with adult T-cell leukemia/lymphoma and NK-cell tumors, patient data were newly collected from 330 patients (222 male and 108 female) with a median age of 49 years (range, 13–71) who underwent SCT between 9/1991 and 12/2008 (196 autologous and 134 allogeneic including 31 patients with previous autograft). Allogeneic SCT (53 BM, 54 PB, 1 BM+PB, 26 CB) was performed using a reduced-intensity conditioning (RIC) in 84 patients (63%). While a pathologic central review will be performed, currently there were 159 (48%) patients with PTCL, not otherwise specified, 63 (19%) with angioimmunoblastic T-cell lymphoma, 47(14%)

with anaplastic large cell lymphoma (23 ALK-negative, 14 ALK-positive and 10 unknown), 12 (4%) with enteropathy-associated T-cell lymphoma, and others. The disease status at transplant in the allo-group was significantly worse than that in the auto-group (Table 1). The median number of chemotherapy regimens was 2 (range, 1–7), and the median duration between diagnosis and transplant was 267 days (range, 120-4889 days).

Results: The median follow-up for surviving patients was 45 mo (range, 2.3–141 mo). There was no significant difference in overall survival among different groups, including histological subtypes, RIC and myeloablative conditioning in the allo-group and high-dose chemotherapy regimens in the auto-group. Early survival rate after transplant was significantly better for auto-group than allo-group (Wilcoxon P=0.001), but the difference was marginal in the total course (Logrank P=0.06) (Figure). The non-relapse mortality (NRM) in the auto-group was significantly lower than that in the allo-group (P<0.0001) (Table 2). Grade II-IV acute GVHD occurred in 49% of the patients after allogeneic SCT. The causes of death that contributed to NRM were infection in 16/21 (auto/allo), organ failure in 6/12, GVHD in 0/5, secondary cancer in 5/0 and other in 7/5. The long-term relapse rate in the auto-group was significantly higher than that in the allo-group (Fleming-Harrington P=0.03). Univariate analyses showed that the risks of survival were bulky mass at diagnosis, age, recurrence after frontline therapy, number of chemotherapy regimens (>1), cell source (CB/BM+PB), and performance status (PS; >1), stage, chemorefractory disease, international prognostic index (IPI; H-I/H risk) and prognostic index for PTCL, unspecified (PIT; group 3/4) at transplant. The risk factors in the allo-group were bulky mass at diagnosis, age (>50 years), cell source, and PS, stage, IPI and PIT at transplant, while those in the auto-group were age (>40 years), recurrence after frontline therapy, number of chemotherapy regimens, and stage, chemorefractory disease, IPI and PIT at transplant.

Conclusions: Despite a worse disease status at transplant in the allo-group, the overall survival was comparable to that in the auto-group. This supports the notion that early allogeneic SCT is a valuable treatment option for PTCLs, although a large-scale randomized trial to identify a suitable upfront-transplant type for chemosensitive patients with PTCLs is warranted.

Table 1: Disease status

		Auto (n=196)	Allo (n=134)	P
Bulky mass at diagnosis		25 (13%)	10 (8%)	0.147
Performance status 2-4 at SCT		19 (10%)	35 (26%)	<0.0001
Stage at SCT:	Complete remission	114 (59%)	27 (20%)	<0.0001
	Limited stage (I/II)	28 (14%)	17 (13%)	
	Advanced stage (III/IV)	53 (27%)	90 (67%)	
IPI 3-5 at diagnosis		72 (37%)	57 (42%)	0.420
PIT 2-4 at diagnosis		74 (38%)	62 (46%)	0.172
IPI 3-5 at SCT		24 (12%)	43 (32%)	<0.0001
PIT 2-4 at SCT		23 (12%)	45 (34%)	<0.0001

Table 2: Study Outcomes

	Auto (n=196)	Allo (n=134)	P (Logrank)	P (Wilcoxon)	P (F-H)
1-year/3-year NRM	8% / 10%	30% / 33%	<0.0001	<0.0001	0.01
1-year/3-year relapse	38% / 45%	29% / 37%	0.19	0.49	0.03
1-year/3-year PFS	57% / 49%	50% / 43%	0.18	0.02	0.61
1-year/3-year OS	74% / 59%	55% / 52%	0.06	0.001	0.15
1-year/3-year OS (CR at SCT)	84% / 72%	70% / 66%	0.23	0.10	0.78
1-year/3-year OS (stage I-II at SCT)	71% / 56%	76% / 76%	0.20	0.38	0.07
1-year/3-year OS (stage III-IV at SCT)	54% / 33%	47% / 43%	0.91	0.27	0.01

Abbreviation: F-H, Fleming and Harrington

Figure: Probabilities of overall survival by type of transplant