

Table 1 Demographics of patients, and type of surgery

	male (55)	mix(27)	P value
Age(yr)	69.0±13.9	63.5±18.5	0.178
Recipient sex, female / male n(%)	29(53%)/26(47%)	16(59%)/9(41%)	0.641
Weight(kg)	54.5±12.4	59.8±13.5	0.278
Height(cm)	157.1±7.4	155.9±21.2	0.076
Type of surgery			
Thoracic surgery			
CABG	10	2	
open heart surgery	12	1	
TAA	15	12	
Abdominal surgery			
AAA	5	2	
gastro-intestinal	4	3	
urology	5	4	
gynecology	3	1	
cesarean section	0	1	
Neurosurgery	1	0	
Plastic surgery	0	1	
Use of CPB n(%)	28(51)	15(56)	0.692
Preoperative complications, n(%)			
liver dysfunction	17(31)	8(30)	0.906
renal dysfunction	17(31)	7(26)	0.641
infection	26(47)	18(67)	0.098

CABG: coronary artery bypass grafting, TAA: Thoracic aorta aneurysm, AAA: Abdominal artery aneurysm, CPB: cardiopulmonary bypass

Table 2 Intraoperative parameters

	male (55)	mix (27)	P value
Duration of operation (min)	425 ± 146	582 ± 255	0.055
Duration of anesthesia (min)	516 ± 163	609 ± 266	0.059
Intravenous fluid volume (ml)	3307 ± 1899	4505 ± 3737	0.12
Intraoperative transfusion(ml)	2925 ± 1929	6367 ± 4897	0.001
Amount of FFP,(units)	7.7 ± 5.2	17.3 ± 13.4	0.001
FFP from male donors,(units)	7.7 ± 5.2	13.1 ± 12.2	0.038
FFP from female donors,(units)	0	4.1 ± 4.2	0
tested HLA antibody and LysoPC (%)	63.5	49.5	
HLAclassI positive rate(%)	9.6	22.2	
HLAclassII positive rate(%)	0	7.4	
HNA positive rate(%)	2.5	7.4	
LysoPC(μ mol/L)	258 ± 44	270 ± 53	0.334
Amount of RCC,(units)	9.1 ± 5.5	21.6 ± 20.8	0.005
RCC from male donors,(units)	8.0 ± 9.3	15.9 ± 17.9	0.004
RCC from female donors,(units)	2.1 ± 4.2	4.3 ± 7.1	0.032
Amount of PC	10.1 ± 10.6	20.2 ± 19.3	0.004
PC from male donors,(units)	8 ± 9.3	15.9 ± 17.9	0.041
PC from female donors,(units)	2.1 ± 4.2	4.3 ± 7.1	0.164
Intraoperative blood loss(ml)	3349 ± 1910	6715 ± 5929	0.036
Intraoperative urine (ml)	1298 ± 340	1474 ± 1019	0.427

Percent of tested HLA antibodies and LysoPC is tested units per total administered units.

HLA classI, HLA classII, HNA positive rate(%) means positive units per total administered units in each group.

Table3 Number of pulmonary distress patients

	male(55)	mix(27)	P value
Post transfusion P/F ratio <300	9(16.3%)	10(37%)	0.037
Average of P/F before transfusion	451 ± 84	419 ± 73	0.101
Average of P/F after transfusion	389 ± 116	350 ± 128	0.168
TACO	4(7.3%)	3(11.1%)	0.559
Possible TRALI	2(3.6%)	3(11.1%)	0.184

Table 4 Preoperative and intraoperative background according to the diagnosis of pulmonary distress in FFP study

	no PD	possibleTRALI	TACO	Other PD
n	63	5	7	7
Operation time(min)	458 ±206	423 ±108	517± 214	450± 108
Amount of transfusion (ml)	3733± 3513	3955± 1791	6273 ±4262	4845 ±4234
Amount of infusion (ml)	4021 ±2839	1836 ±630	2616 ±1019	3143 ±2604
PC (U)	11 ±14	21± 9	23 ±18	21 ±14
FFP(U)	10±10	16 ±13	10 ±6	11± 8
RCC(U)	13± 15	11± 7	19 ±10	12 ±12
LysoPC(μ M/L)	265 ±47	289 ±82	250±30	248±28
min-max	217-293	192-377	223-302	176-378
anti-HLAclassI antibody	20/45	4/5	1/6	1/5
anti-HLAclassII antibody	1/45	0/5	0/6	0/5
anti-HNA antibody	9/45	1/5	2/6	2/5
any antibody above	25/45	5/5	3/6	3/5
Liver dysfunction	22%	60%	43%	71%
Renal dysfunction	24%	40%	29%	71%
infection	40%	80%	100%	57%

values are mean ± SD, PD; pulmonary distress

No statistical significance was identified between four groups. P>0.05

Table5 Significant risk factors for pulmonary distress (P/F<300) after intraoperative transfusion

	P value	Odd ratio	95%CI
Use of CPB	0.004	8.950	1.98~40.51
Liver dysfunction	0.005	6.543	1.78~24.02
FFP from male donor	0.022	0.219	0.06~0.80

CPB ; cardiopulmonary bypass, CI; confidence interval

Table 6 Preoperative and intraoperative background according to the diagnosis of pulmonary distress in platelet study

	noPD	possibleTRALI	TACO	otherPD
n	32	5	23	26
Age(yr)*	61±17	72±9	71±11	72±7
Hight(cm)	157±19	161±11	163±9	161±9
Weight(kg)	56±12	62±9	62±12	57±12
cardiac/noncardiac	13/8	4/1	20/3	14/1
Operation time(min)	447±234	500±269	478±202	393±130
Anesthesia time(min)	533±246	648±330	550±215	493±144
Amount of crystalloid (ml)	5787±4351	2496±1441	5481±5196	4369±3572
Amount of transfusion (ml)	5562±5824	5760±2807	4678±5581	3463±2091
Amount of bleeding (ml)	5811±8002	2807±2835	3995±6899	2350±2073
Urine output (ml)	1358±1283	848±695	1968±3279	1321±1079
In-out balance	4430±3841	2630±3043	3544±4426	3114±3415
CPB (y/n)	18/14	4/1	16/7	18/8
LysoPC(μ M/L)	405±89	362±73	406±74	367±47
MAP (ml)	1794±2048	1456±668	1212±1403	883±416
FFP (ml)	1391±839	1854±1063	1294±1417	991±783
PC (ml)	383±255	450±206	355±223	355±202
Renal dysfunction (y/n)	15/17	2/3	12/11	12/14
Hepatic dysfunction (y/n)	11/21	0/5	8/15	10/16
infection(y/n)	19/13	3/2	12/11	16/10
Anti-HLAclassI antibody (y/n)	6/21	2/3	5/11	4/17
Anti-HLAclassII antibody (y/n)	3/24	0/5	4/12	1/20
Anti-granulocyte antibody (y/n)	2/25	2/3	0/16	2/19

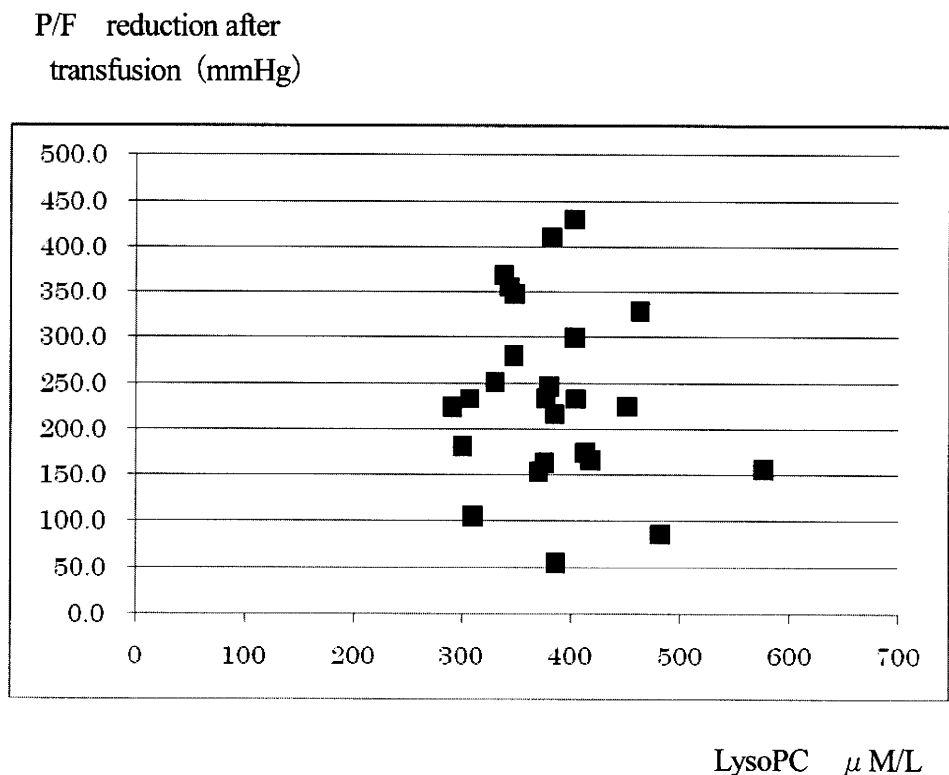
CPB ; cardiopulmonary bypass * p<0.05

Table7 Significant risk factors for each type of pulmonary distress (P/F<300) after intraoperative transfusion

	P value	Odds ratio	95%CI
Pulmonary distress			
age	0.008	1.093	1.023~1.167
Possible TRALI			
Anti-granulocyte antibody	0.023	13.0	1.428~118.279
TACO			
age	0.014	1.146	1.028~1.279
Anti-HLAclassII antibody	0.010	18.4	1.987~170.074

CI; confidence interval

Figure 1 Relationship between P/F decrease after transfusion and LysoPC in platelet concentrate



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