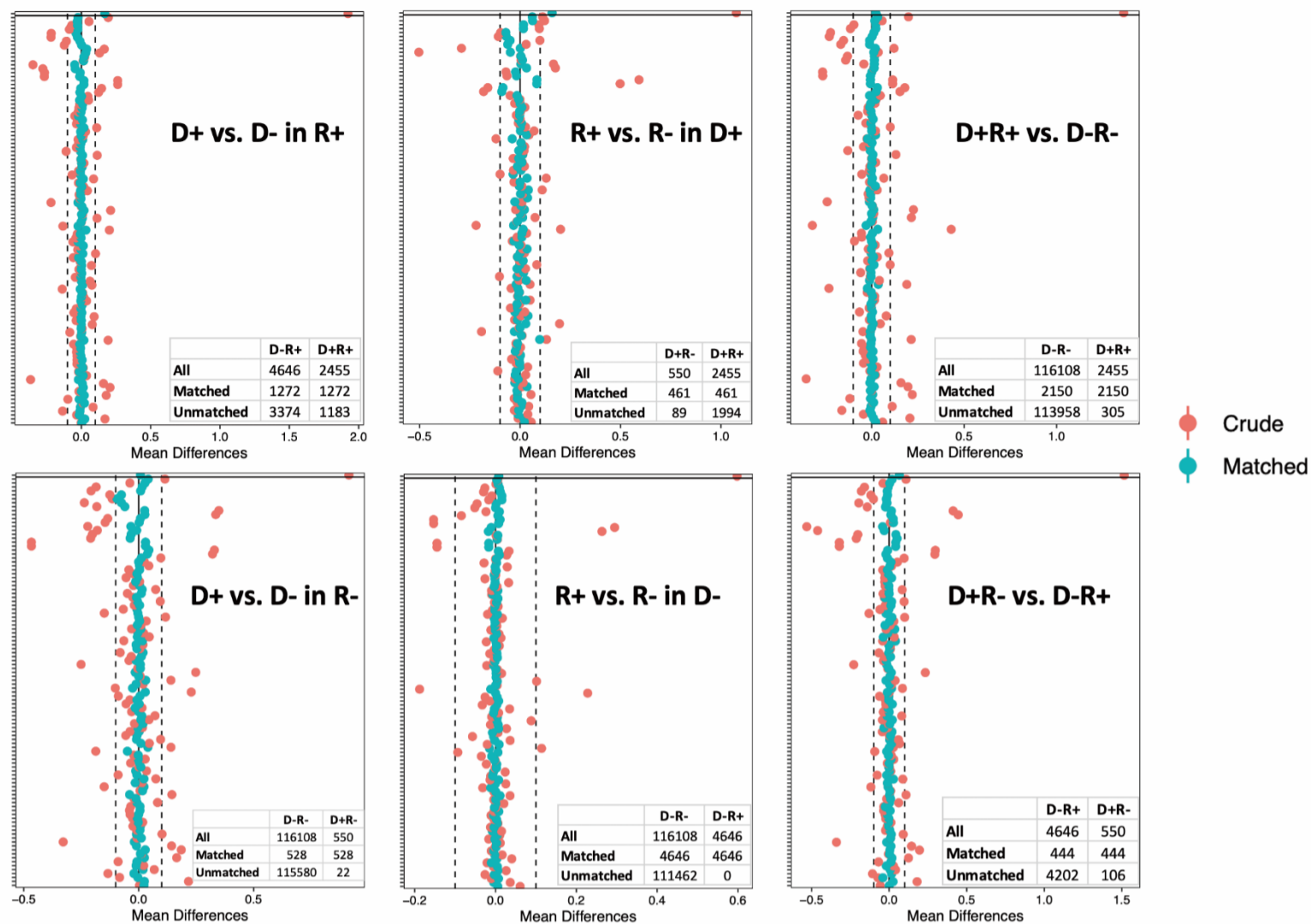
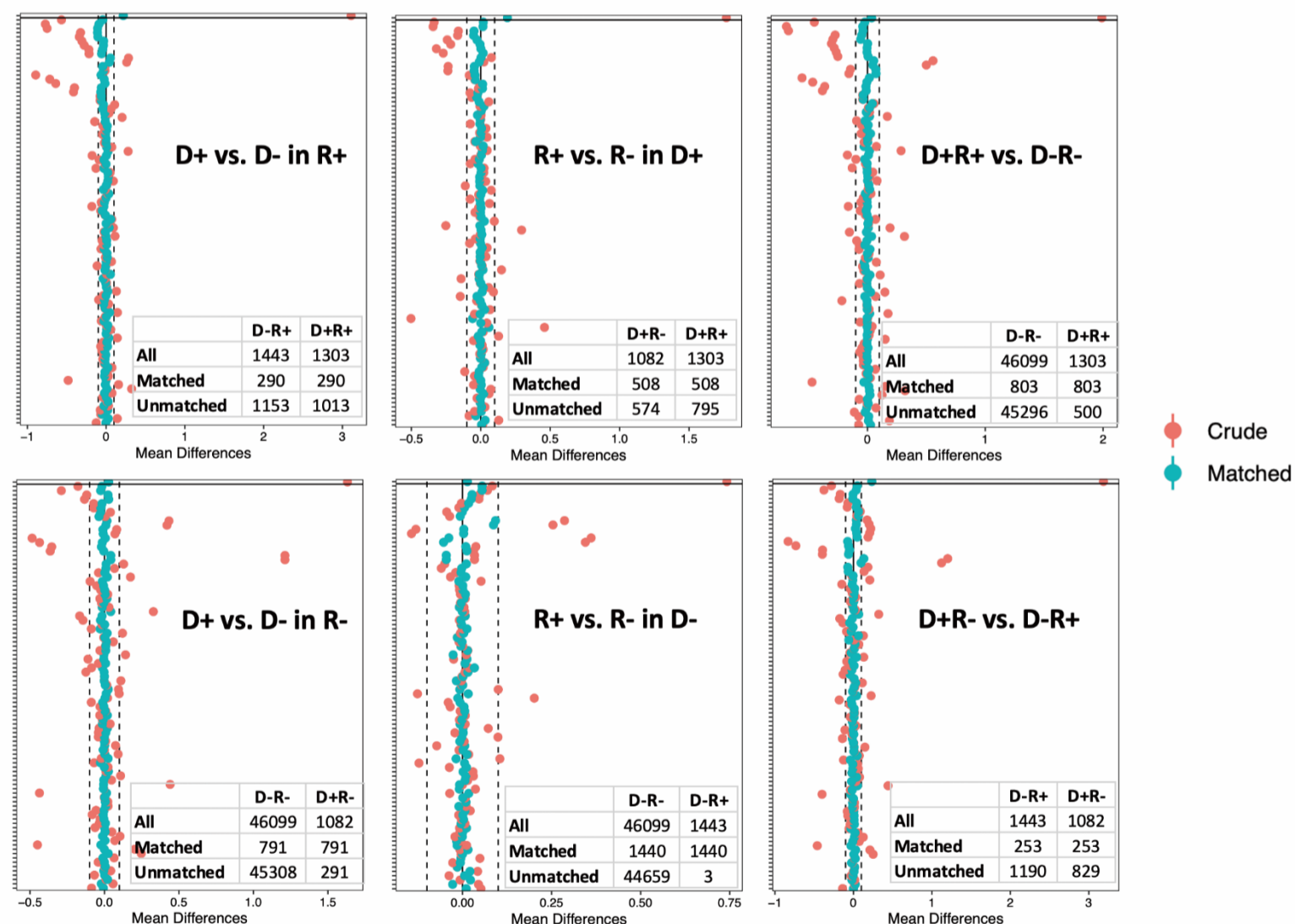


A Pre-DAA



B Post-DAA



Supplementary Figure 1 Balance diagnosis in the pre- and post-direct-acting antivirals eras. The standardized mean difference (SMD) between groups before and after propensity score matching. Each panel represented a pair-wise comparison of the four cohorts (D-R-, D+R-, D-R+, and D+R+). Within each panel, each dot represented a covariate included in the propensity prediction model; the dashed lines represented -0.1 and 0.1 of SMD between the two groups in comparison. Before matching, the some of the red dots located outside the two dashed lines, showing a $SMD > 0.1$; after matching, all the green dots located between the two dashed lines, showing a $SMD \leq 0.1$. A: Balance diagnosis in the pre-direct-acting antivirals (DAA) era; B: Balance diagnosis in the post-DAA era.

Supplementary Table 1 Variables included in the propensity score prediction model and respective missingness and disposal

Variable name	Variable type	Missing number	Missing percent	Disposal of missingness
Donor factor				
Age	Continuous	0	0.00	-
Biological Sex	Categorical	0	0.00	-
BMI	Continuous	1085	0.61	Impute with median
Race	Categorical	0	0.00	-
Blood type	Categorical	0	0.00	-
Cause of death	Categorical	11	0.01	Complete case analysis
Donation after cardiac death	Categorical	26	0.01	Complete case analysis
Terminal SCR	Continuous	272	0.15	Impute with median
Terminal BUN	Continuous	307	0.17	Impute with median
HBV core antibody	Categorical	0	0.00	-
Prerecovery diuretics	Categorical	5695	3.20	Missing indicator
Prerecovery medications: T4	Categorical	5653	3.18	Missing indicator
Received vasodilators	Categorical	16	0.01	Complete case analysis
Lung infection	Categorical	0	0.00	-
History of diabetes	Categorical	29	0.02	Complete case analysis
History of hypertension	Categorical	12	0.01	Complete case analysis
History of smoking	Categorical	12	0.01	Complete case analysis
Recipient factor				
Age	Continuous	0	0.00	-
Biological sex	Categorical	0	0.00	-
BMI	Continuous	1594	0.90	Impute with median
Race	Categorical	0	0.00	-
Blood type	Categorical	0	0.00	-
Insurance	Categorical	137	0.08	Complete case analysis
Education level	Categorical	7048	3.96	Missing indicator
ESRD	Categorical	2188	1.23	Missing indicator
Dialysis days	Continuous	18886	10.61	Missing indicator and impute with median

Calculated PRA	Continuous	4125	2.32	Missing indicator and impute with median
PVD	Categorical	7281	4.09	Missing indicator
Diabetes	Categorical	6918	3.89	Missing indicator
Previous malignancy	Categorical	0	0.00	-
HIV Status ¹	Categorical	12130	6.82	Missing indicator
Transplant factor				
Calendar year of transplant	Continuous	0	0.00	-
Region	Categorical	0	0.00	-
Shared	Categorical	0	0.00	-
Cold ischemia time	Continuous	7002	3.94	Missing indicator and impute with median
HLA mismatch	Categorical	124	0.07	Complete case analysis
HLA A mismatch	Categorical	48	0.03	Complete case analysis
HLA DR mismatch	Categorical	105	0.06	Complete case analysis
DGF	Categorical	10	0.01	Complete case analysis

¹HIV Status in recipient was not included in the post DAA era analysis because of small positive proportion.

BMI: Body mass index; SCR: Serum creatinine; BUN: Blood urea nitrogen; HBV: Hepatitis B virus; T4: Tetraiodothyronine; ESRD: End stage renal disease; PRA: Panel reaction antibody; PVD: Peripheral vascular disease; HLA: Human leucocyte antigen; DGF: Delayed graft function; HIV: Human immunodeficiency virus.

Supplementary Table 2A Other characteristics of donors and donation procedures in the pre-direct-acting antivirals era

	D-R-	D-R+	D+R-	D+R+	P Value
<i>n</i>	116108	4646	550	2455	
Blood type (%)					< 0.001
A	43102 (37.1)	1603 (34.5)	174 (31.6)	731 (29.8)	
B	13699 (11.8)	699 (15.0)	67 (12.2)	301 (12.3)	
AB	4348 (3.7)	191 (4.1)	8 (1.5)	14 (0.6)	
O	54959 (47.3)	2153 (46.3)	301 (54.7)	1409 (57.4)	
BUN (median [IQR])	13.0 [9.0, 19.0]	13.0 [8.0, 18.0]	11.0 [8.0, 16.0]	12.0 [8.0, 17.0]	< 0.001
HBV (%)					< 0.001
No	108786 (93.7)	4262 (91.7)	433 (78.7)	1982 (80.7)	
Yes	4789 (4.1)	270 (5.8)	87 (15.8)	423 (17.2)	
Unknown	2533 (2.2)	114 (2.5)	30 (5.5)	50 (2.0)	
Prerecovery diuretics (%)					<0.001
No	51805 (44.6)	2087 (44.9)	251 (45.6)	1148 (46.8)	
Yes	58700 (50.6)	2295 (49.4)	261 (47.5)	1219 (49.7)	
Unknown	5603 (4.8)	264 (5.7)	38 (6.9)	88 (3.6)	
Prerecovery medications: T4 (%)					< 0.001
No	61790 (53.2)	2535 (54.6)	318 (57.8)	1175 (47.9)	
Yes	48457 (41.7)	1833 (39.5)	194 (35.3)	1185 (48.3)	
Unknown	5861 (5.0)	278 (6.0)	38 (6.9)	95 (3.9)	
Received vasodilators = yes (%)	13332 (11.5)	518 (11.1)	66 (12.0)	315 (12.8)	0.171
Lung infection = confirmed (%)	32561 (28.0)	1237 (26.6)	110 (20.0)	761 (31.0)	< 0.001
History of smoking (%)					< 0.001
No smoking history	78484 (67.6)	3039 (65.4)	234 (42.5)	1068 (43.5)	
Smoking but not continued	6228 (5.4)	270 (5.8)	27 (4.9)	141 (5.7)	
Continued smoking	30303 (26.1)	1282 (27.6)	280 (50.9)	1195 (48.7)	
Unknown	1093 (0.9)	55 (1.2)	9 (1.6)	51 (2.1)	

D(-/+), R(-/+), hepatitis C virus (-) or (+) donors into hepatitis C virus (-) or (+) recipients. BUN: Blood urea nitrogen; HBV: Hepatitis B virus.

Supplementary Table 2B Other characteristics of recipients in the pre-direct-acting antivirals era

	D-R-	D-R+	D+R-	D+R+	P Value
<i>n</i>	116108	4646	550	2455	
BMI missing = yes (%)	1378 (1.2)	73 (1.6)	17 (3.1)	38 (1.5)	< 0.001
Blood type (%)					< 0.001
A	43299 (37.3)	1580 (34.0)	175 (31.8)	686 (27.9)	
B	14558 (12.5)	744 (16.0)	77 (14.0)	354 (14.4)	
Ab	6332 (5.5)	289 (6.2)	13 (2.4)	89 (3.6)	
O	51919 (44.7)	2033 (43.8)	285 (51.8)	1326 (54.0)	
Education level (%)					< 0.001
Grade school/none	7824 (6.7)	255 (5.5)	27 (4.9)	112 (4.6)	
High school	44906 (38.7)	1923 (41.4)	222 (40.4)	1195 (48.7)	
Technical	22531 (19.4)	931 (20.0)	86 (15.6)	450 (18.3)	
Post high school degree	18972 (16.3)	494 (10.6)	59 (10.7)	254 (10.3)	
Unknown	21875 (18.8)	1043 (22.4)	156 (28.4)	444 (18.1)	
DIAL DAY missing = yes (%)	13290 (11.4)	369 (7.9)	51 (9.3)	220 (9.0)	< 0.001
CPRA missing = yes (%)	3702 (3.2)	144 (3.1)	33 (6.0)	117 (4.8)	< 0.001
PVD (%)					< 0.001
No	100105 (86.2)	3900 (83.9)	455 (82.7)	2153 (87.7)	
Yes	5374 (4.6)	210 (4.5)	26 (4.7)	111 (4.5)	
Unknown	10629 (9.2)	536 (11.5)	69 (12.5)	191 (7.8)	
Diabetes (%)					< 0.001
No	71807 (61.8)	2818 (60.7)	291 (52.9)	1356 (55.2)	
Yes	38827 (33.4)	1491 (32.1)	225 (40.9)	1014 (41.3)	
Unknown	5474 (4.7)	337 (7.3)	34 (6.2)	85 (3.5)	
Malignancy (%)					< 0.001
No	82232 (70.8)	3143 (67.6)	307 (55.8)	1853 (75.5)	
Yes	4623 (4.0)	166 (3.6)	25 (4.5)	100 (4.1)	
Unknown	29253 (25.2)	1337 (28.8)	218 (39.6)	502 (20.4)	

D(-/+), R(-/+), hepatitis C virus (-) or (+) donors into hepatitis C virus (-) or (+) recipients. BMI: Body mass index; CPRA: Calculated panel reaction antibody; PVD: Peripheral vascular disease.

Supplementary Table 2C Other characteristics of transplantation in the pre-direct-acting antivirals era

	D-R-	D-R+	D+R-	D+R+	P Value
<i>n</i>	116108	4646	550	2455	
CIT missing = yes (%)	6191 (5.3)	324 (7.0)	36 (6.5)	129 (5.3)	< 0.001
HLA-A mismatch (%)					< 0.001
0	20936 (18.0)	740 (15.9)	50 (9.1)	152 (6.2)	
1	42224 (36.4)	1665 (35.8)	212 (38.5)	911 (37.1)	
2	52948 (45.6)	2241 (48.2)	288 (52.4)	1392 (56.7)	
HLA-DR mismatch (%)					< 0.001
0	25225 (21.7)	888 (19.1)	46 (8.4)	136 (5.5)	
1	51434 (44.3)	2010 (43.3)	198 (36.0)	978 (39.8)	
2	39449 (34.0)	1748 (37.6)	306 (55.6)	1341 (54.6)	

D(-/+), R(-/+), hepatitis C virus (-) or (+) donors into hepatitis C virus (-) or (+) recipients. CIT: Cold ischemia time; HLA: Human leukocyte antigen.

Supplementary Table 3A Other characteristics of donors and donation procedures in the post-direct-acting antivirals era

	D-R-	D-R+	D+R-	D+R+	P Value
<i>n</i>	46099	1443	1082	1303	
Blood type (%)					< 0.001
A	16891 (36.6)	520 (36.0)	420 (38.8)	408 (31.3)	
B	5617 (12.2)	187 (13.0)	98 (9.1)	167 (12.8)	
AB	1705 (3.7)	45 (3.1)	18 (1.7)	11 (0.8)	
O	21886 (47.5)	691 (47.9)	546 (50.5)	717 (55.0)	
BUN (median [IQR])	17.0 [12.0, 26.0]	17.0 [12.0, 25.0]	18.0 [13.0, 27.0]	16.0 [11.0, 22.0]	< 0.001
HBV = yes (%)	1616 (3.5)	42 (2.9)	169 (15.6)	105 (8.1)	< 0.001
Prerecovery diuretics = yes (%)	26511 (57.5)	809 (56.1)	616 (56.9)	773 (59.3)	0.371
Prerecovery medications: T4 = yes (%)	24839 (53.9)	763 (52.9)	647 (59.8)	808 (62.0)	< 0.001
Received vasodilators = yes (%)	5494 (11.9)	173 (12.0)	135 (12.5)	167 (12.8)	0.738
Lung infection (%)					< 0.001
No	16658 (36.1)	543 (37.6)	358 (33.1)	478 (36.7)	
Reported but not confirmed	23530 (51.0)	751 (52.0)	705 (65.2)	704 (54.0)	
Confirmed	5911 (12.8)	149 (10.3)	19 (1.8)	121 (9.3)	
History of smoking (%)					< 0.001
No smoking history	36564 (79.3)	1154 (80.0)	723 (66.8)	953 (73.1)	
Smoking but not continued	1306 (2.8)	39 (2.7)	30 (2.8)	15 (1.2)	
Continued smoking	7706 (16.7)	237 (16.4)	300 (27.7)	307 (23.6)	
Unknown	523 (1.1)	13 (0.9)	29 (2.7)	28 (2.1)	

D(-/+), R(-/+), hepatitis C virus (-) or (+) donors into hepatitis C virus (-) or (+) recipients. BUN: Blood urea nitrogen; HBV: Hepatitis B virus.

Supplementary Table 3B Other characteristics of recipients in the post-direct-acting antivirals era

	D-R-	D-R+	D+R-	D+R+	P Value
<i>n</i>	46099	1443	1082	1303	
Blood type (%)					< 0.001
A	16567 (35.9)	509 (35.3)	398 (36.8)	375 (28.8)	
B	5866 (12.7)	195 (13.5)	103 (9.5)	184 (14.1)	
AB	2547 (5.5)	67 (4.6)	44 (4.1)	49 (3.8)	
O	21119 (45.8)	672 (46.6)	537 (49.6)	695 (53.3)	
Education level (%)					< 0.001
Grade school/none	3871 (8.4)	90 (6.2)	47 (4.3)	69 (5.3)	
High school	19085 (41.4)	741 (51.4)	403 (37.2)	680 (52.2)	
Technical	11577 (25.1)	369 (25.6)	280 (25.9)	318 (24.4)	
Post high school degree	10687 (23.2)	230 (15.9)	331 (30.6)	214 (16.4)	
Unknown	879 (1.9)	13 (0.9)	21 (1.9)	22 (1.7)	
DIAL DAY missing = yes (%)	4227 (9.2)	79 (5.5)	125 (11.6)	112 (8.6)	< 0.001
Malignancy = yes (%)	3740 (8.1)	138 (9.6)	139 (12.8)	109 (8.4)	< 0.001
HIV (%)					< 0.001
No	11770 (25.5)	368 (25.5)	753 (69.6)	252 (19.3)	
Positive	662 (1.4)	73 (5.1)	11 (1.0)	70 (5.4)	
Unknown	33667 (73.0)	1002 (69.4)	318 (29.4)	981 (75.3)	

D(-/+), R(-/+), hepatitis C virus (-) or (+) donors into hepatitis C virus (-) or (+) recipients. DIAL DAY: Recipient's dialysis days; HIV: Human immunodeficiency virus.

Supplementary Table 3C Other characteristics of transplantation in the post-direct-acting antivirals era

	D-R-	D-R+	D+R-	D+R+	P Value
<i>n</i>	46099	1443	1082	1303	
HLA-A mismatch (%)					< 0.001
0	5236 (11.4)	124 (8.6)	77 (7.1)	57 (4.4)	
1	17710 (38.4)	533 (36.9)	416 (38.4)	497 (38.1)	
2	23153 (50.2)	786 (54.5)	589 (54.4)	749 (57.5)	
HLA-DR mismatch (%)					< 0.001
0	7493 (16.3)	180 (12.5)	103 (9.5)	66 (5.1)	
1	22331 (48.4)	689 (47.7)	535 (49.4)	534 (41.0)	
2	16275 (35.3)	574 (39.8)	444 (41.0)	703 (54.0)	

D(-/+), R(-/+), hepatitis C virus (-) or (+) donors into hepatitis C virus (-) or (+) recipients. HLA: Human leucocyte antigen.