Induction Immunosuppression Selection in People Living with HIV Undergoing Deceased Donor Kidney Transplantation: U.S. National Trends from 2000 to 2018

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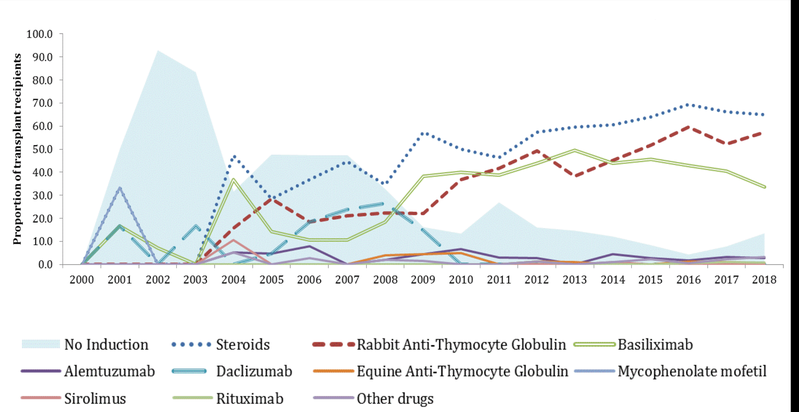
Background

- Human Immunodeficiency Virus (HIV) outcomes have significantly improved at the expense of other age-related diseases including chronic kidney disease.
- Early reports of people living with HIV (PLWH) undergoing deceased-donor kidney transplantation (DDKT) showed poor outcomes, but these have notably improved after introduction of antiretrovirals.
- Despite years of experience, the optimal induction immunosuppression (IIS) in PLWH remains subject of debate.
- Large-scale studies describing the current ISS practices in PLWH undergoing DDKT are lacking.
- Here, we describe the U.S. national trends of IIS used in PLWH undergoing DDKT from 2000 to 2018 using the United Network of Organ Sharing (UNOS) database.

Methods

- We analyzed the UNOS database to determine the selection of IIS in PLWH undergoing first-time DDKT between 1/1/2000 and 12/31/2018.
- Cases with unknown HIV status at the time of transplant were excluded.
- Age, sex and demographics were analyzed.
- The regimen used for IIS was compared based on HIV serostatus and the change in induction regimen was trended over time.

Figure 1. Induction immunosuppression selection in HIV-positive deceased-donor kidney transplant recipients in U.S. (2000-2018)



Results

- 139,650 cases underwent DDKT during the study period
- 1,384 were identified as HIV-positive (PLWH) and were significantly younger than HIV-negative (49±10 years vs. 51.6 ± 15.3 years; p< 0.001)
- A greater proportion of men was seen in the PLWH group compared to HIV-negative persons (76.2% vs. 60.4%; p< 0.0001).
- In the HIV-negative group, 12.1% undergoing DDKT did not receive IIS compared to 16.4% in PLWH (p< 0.0001).
- Medications that have significantly increased in use with years in PLWH included rabbit anti-thymocyte globulin (rATG), steroids, and basiliximab (3.54, 3.25, 2.28, respectively; p< 0.001)
- On our trend analysis (Figure 1), the percentage of PLWH receiving any IIS is increasing by 4.04% each year (p< 0.001).Table 1

Table 1. Characteristics of PLWH and HIV-negative deceased-donor kidney recipients in the U.S. from 2000 to 2018

	All Cases		HIV-positive		HIV-negative		p-value
	n=	139650	n=	1387	n=	138263	
Mean age (SD)	51.6	(15.3)	49.7	(10.0)	51.6	(15.3)	**< 0.001**
Male	84507	(60.5)	1057	(76.2)	83450	(60.4)	**< 0.001**
Female	55143	(39.5)	330	(23.8)	54813	(39.6)	
Age group (%)							
0-10 yo	2246	(1.6)	1	(0.1)	2245	(1.6)	**< 0.001**
11-20 yo	4825	(3.5)	10	(0.7)	4815	(3.5)	
21-30 yo	6936	(5.0)	32	(2.3)	6904	(5.0)	
31-40 yo	15182	(10.9)	195	(14.1)	14987	(10.8)	
41-50 yo	26813	(19.2)	485	(35.0)	26328	(19.0)	
51-60 yo	38890	(27.8)	467	(33.7)	38423	(27.8)	
61-70 yo	35918	(25.7)	180	(13.0)	35738	(25.8)	
71-80 yo	8581	(6.1)	17	(1.2)	8564	(6.2)	
81 and older	259	(0.2)	0	(0.0)	259	(0.2)	
Induction at time of transplant	122720	(87.9)	1159	(83.6)	121561	(87.9)	**< 0.001**
No induction	16930	(12.1)	228	(16.4)	16702	(12.1)	
Number of induction drugs	1.6		1.5		1.6		0.008
Steroids	90936	(65.1)	808	(58.3)	90128	(65.2)	**<0.001**
Rabbit anti-thymocyte globulin	67337	(48.2)	624	(45.0)	66713	(48.3)	**<0.001**
Basiliximab	28991	(20.8)	522	(37.6)	28469	(20.6)	**<0.001**
Alemtuzumab	16712	(12.0)	41	(3.0)	16671	(12.1)	**<0.001**
Daclizumab	5653	(4.0)	42	(3.0)	5611	(4.1)	0.067
Equine anti-thymocyte globulin	1731	(1.2)	15	(1.1)	1716	(1.2)	0.468
Mycophenolate mofetil	1205	(0.9)	2	(0.1)	1203	(0.9)	**<0.001**
Sirolimus	1222	(0.9)	3	(0.2)	1219	(0.9)	**0.003**
Rituximab	935	(0.7)	6	(0.4)	929	(0.7)	0.518
Other drugs	2720	(1.9)	19	(1.4)	2701	(2.0)	0.118

Conclusions

- Our study suggests that IIS is an increasing practice in PLWH undergoing DDKT,
- The increasing IIS use is predominantly by rATG, steroids, and basiliximab.
- Understanding the current practices might lead to further studies to determine the long-term outcomes after different induction regimens in PLWH.