

Organ Transplantation in Korea

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History of transplantation

- International

- 1952: Cornea Transplantation(Stocker)
- 1954: Twin Kidney allograft(Murray)
- 1963: Liver Transplantation(Starzl)
- 1968: HLA A & DR
- 1977: Immunosuppression drug-Cyclosporine (Borel)
- 1978: HLA DR
- 1981: Heart and Lung Transplantation
- 1983: Lung Transplantation

- Domestic

- 1945: Cornea Transplantation
- 1969: Living Kidney Transplantation
- 1979: Cadaveric Kidney Transplantation
- 1988: Liver Transplantation
- 1992: Simultaneous pancreas and kidney transplantation
 - Pancreas single transplantation
 - Heart transplantation
- 1993: Declaration on the brain death by Korean Medical Association
- 1994: Partial living liver transplantation
- 1996: Lung transplantation
- 1997: Simultaneous heart-lung transplantation
- 1999: Simultaneous liver-kidney transplantation
 - Pass the Organ and Tissue Transplantation Act
- 2000: Establish KONOS(Korean Network for Organ Sharing)

Organ transplantation, and kidney transplantation in particular, has long been practiced widely in Korea even before the introduction of the Organ Transplantation Act. However, single organs, such as liver, pancreas, and heart, could be donated only from cadaveric donors. The first liver transplantation was performed in 1988 with the organ donated by a cadaveric donor, and since then, transplants involving other organs such as the pancreas and heart followed. During these times, transplantation of single organs was permissible in the case of brain death only in terms of medical decisions. Legal regulations according to which to decide brain death were nonexistent then.

There has been no standardized instruction on organ transplantation until the number of transplants reached 10,000 cases, and decisions of transplantation were largely left to the discretion of hospitals and professionals concerned. Living organ donation from donors and their families were limited and therefore could not meet the demand. The shortage of organ gave rise to a serious social problem involving purchase and sale of organs. As a consequence, the issue of cadaveric donor procurement came to the fore and many doctors and professionals made great effort to develop Organ Transplantation Act in anticipation that the law would resolve the problem and promote transplantation. Also, in recognition of the need for further efforts in this area, a number of NGOs and religious groups began spearheading organ donation campaigns.

The purpose of Organ Transplantation Act is threefold: legal determination of brain death; fair distribution of organs and eradication of organ trades; promotion of organ transplantation.

The National Assembly at a regular session in 1997 made a preliminary announcement of Organ and Tissue Transplantation Act (legislative bill). However, articles concerning "the minimum age of minors for organ procurement" and "organ procurement through the consent of the family from the brain dead person who did not, while alive, express the will of donation" raised a need for revision. The revised bill was presented to, and passed

by, the Assembly in 1998. The Act was promulgated in February 1999 (Article 5858) and became effective in September 2000.

It was expected that the law would support and promote transplantation. However, transplant cases decreased in number after the enactment of the law.

Private sector activities in the area of organ transplantation promotion are under the management of the government. Also, determination of brain death and activities associated with organ transplantation at hospitals are required to be performed within the boundary of the law. Under this context, the question of distributive justice was raised as a result of the wide gap between the demand and supply of organs. Other problems raised pertain to who should provide the cost of transplantation and how much should be covered by public or social insurance sector.

Transplantation of cadaveric organ has been a contentious issue in Korea, particularly when it is related with cessation of brain functioning. Although medical doctors have been eager to define brain death as a type of death within the legal boundary, law scholars kept arguing otherwise.

The most defined characteristic of the Korean Transplantation Act is the strict criteria it imposes. The criteria for determining brain death are very strict in Korea, which include the requirements of electro-encephalogram and a set of complicated procedures. Also, while other countries normally require only two or three doctors for the determination of brain death, Korea requires an agreement from 2/3 of a committee of 7~10 members that include two medical specialists. Those procedures, focused largely on elimination of possibility of errors, seem to create barriers to timely transplantation.

Organ recipients as a rule are selected by KONOS according to the established selection criteria from the group of registered transplantation candidates, with the exception of urgent cases.

Table 1. Transplantation in Korea(1988-1998)

		'88 ~ '91	'92	'93	'94	'95	'96	'97	'98*	2000***	
No of Brain death		3	11	20	47	71	63	98	125**	64	
										Cadv.	Live
Kidney		3,318	905	719	686	898	901	967	993	125	557
Liver	Live				2	3	18	34	41		186
	Cadaveric	1	7	8	26	22	27	37	55	42	
Heart		0	1	1	26	21	20	29	30	14	
Pancreas		0	5	2	5	0	2	3	9	10	
Lung							2	0	0	1	
Heart & lung								3	0		
Total no of transplantation		3,319	918	730	745	944	970	1,073	1,128	192	743

- Source: 1) 1988-1997: Annual Report, Korea Medical Association
 2) * 1998: Ki Il Park, Current Status and Future of Organ Transplantation in Korea, Education of the Medical and Health Officials Education of the Medical and Health Officials at Health Center, KONOS, 2002.
 3) ** 1998 No of brain death: KONOS, Transplantation by Brain Death 1979-2000
 4) *** 2000: Annual Report, KONOS

Table 2. Transplantation Cases by Donation of the Brain Deaths in Korea(1988-1998)

(Unit: cases, %)

	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	2000*	2001*
No of Brain death	1	0	2	0	11	20	47	71	63	98	125	162	64	52
Cornea					12	23	58	88	66	98	NA	NA	77	50
Liver	1	-	2	-	7	8	23	21	27	38	61	84	42	35
Heart	-	-	-	-	1	2	26	23	27	31	30	34	14	21
Heart valve									6	8				
Pancreas					3	2	5	-	2	3	8	8	10	0
Kidney					12	34	63	121	99	164	238	306	125	94
Kidney & spleen														5
Lung					1				2	2	0	3	1	0
Total no of transplantation	1	-	2	-	36	69	175	253	229	344	337	435	269	205

Source: 1) '88-'97: Material from Korea Medical Association
 2) '98-'99: KONOS, Transplantation by Brain Death 1979-2000
 3) 2000: Annual Report, KONOS
 4) 2001: Education of the Medical and Health Officials at Health Center, KONOS, 2002.

Table 3. Number of Patients waiting for Transplantation

	2000. 31. Dec	2001. 31. Dec
Kidney	3,120	3,262
Liver	620	944
Pancreas	75	82
Heart	119	134
Lung	47	51
Cornea	2,152	2,576
Bone Marrow	889	1,348
Total	7,022	8,397

Source: Education of the Medical and Health Officials at Health Center, KONOS, 2002.

Table 4. Number of Approval of Transplantation from Living Donor by KONOS

	9 Feb ~ 31 Dec. 2000	1 Jan ~ 31 Dec. 2001
Kidney	573	754
Liver	246	356
Bone Marrow	325	449
Total	1,144	1,559

Source: Education of the Medical and Health Officials at Health Center, KONOS, 2002.

*Table 5. Relation Between Living Donor and Recipient
(9 Feb 2000 ~ 31 Dec 2001) Kidney*

	Kinship(consanguinity)			Non kinship		
	Parent-offspring	Brothers-sisters	Relatives	Husband-wife	Relatives	Unrelated person
2000	168	218	22	47	6	112
2001	226	265	25	81	19	138

Source: Education of the Medical and Health Officials at Health Center, KONOS, 2002.

Note: Data is based on approval cases

*Table 6. Relation Between Living Donor and Recipient
(9 Feb 2000 ~ 31 Dec 2001) Liver*

	Kinship(consanguinity)			Non kinship		
	Parent-offspring	Brothers - sisters	Relatives	Husband - wife	Relatives	Unrelated person
2000	133	30	32	16	17	18
2001	142	45	49	30	50	40

Source: Education of the Medical and Health Officials at Health Center, KONOS, 2002.

Note: Data is based on approval cases

Table 7. Relation Between Living Donor and Recipient(9 Feb 2000 ~ 31 Dec 2001) Bone Marrow

	Kinship(consanguinity)			Non kinship		
	Parent-offspring	Brothers-sisters	Relatives	Husband-wife	Relatives	Unrelated person
2000	14	275	1	0	0	35
2001	6	304	0	0	0	139

Source: Education of the Medical and Health Officials at Health Center, KONOS, 2002.

Note: Data is based on approval cases