

Organ Donation From Elderly Deceased Donors and Transplantation to Elderly Recipients in Poland: Numbers and Outcomes

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ABSTRACT

The age of a donor and recipient is one medical criterion in the kidney allocation system. The number of elderly donors and recipients is steadily growing. The aim of the study was to retrospectively evaluate the 5-year results of kidney transplantation from donors over 65 years of age to recipients over 60 years of age. In the years 1998 to 2010, 8526 potential deceased donation after brain death organ donors and 8206 people (81%), who had been treated with transplantation of kidneys were referred to the Poltransplant. The actual number of deceased donors >65 years was 358 and <65 years was 7207. The actual 5-year survival of a kidney transplant from donors >65 years was 59.2% (55.3% of recipients >60 years and 60.7% of recipients <60 years of age; $P < .0001$) and from donors <65 years was 75.1% (67.5% of recipients >60 years and 75.7% of recipients <60 years; $P < .0001$). The actual 5-year survival of kidney recipients from all donors >65 years was 75.6% (79.5% younger recipients vs 65.9% elderly recipients; $P < .0001$). The 5-year survival of kidney recipients from all donors <65 years was 88.1% ($P < .0001$); 89% younger recipients and 74.3% elderly recipients ($P < .0001$). The above analysis of the material from the Polish registry displayed significantly worse results of kidney transplantation from donors >65 years, regardless of the age group of recipients.

THE AGE of a potential donor and recipient is one medical criterion in choosing a recipient upon which the kidney allocation system is based. Since 2007 the Polish system of kidney allocation has required that kidneys harvested for transplantation from donors under 16 years of age be given to the recipients under 18 years of age, and those collected from donors over 65 years of age given to recipients over 60 years of age [1]. The number of young deceased kidney donors and potential kidney recipients in Poland has not increased in recent years, unlike the number of elderly donors and recipients, which is steadily growing [2–4]. The older age of kidney recipients is a significant and independent predictor of death after transplantation [5]. On the other hand, the risk of death for dialysis patients is still significantly higher than in patients after renal transplantation. Moreover, the risk increases with the age of patients [6,7].

AIM OF THE STUDY

The aim of the study was to retrospectively evaluate the results of transplantation of kidneys retrieved from donors over 65 and donated to recipients over 60, measured by a 5-year actual survival of a recipient and a graft.

MATERIAL AND METHODS

From 1998 to 2010, 8526 potential deceased donation after brain death (DBD) organ donors were referred to the Polish Transplant Coordinating Center Poltransplant. Of this group of potential donors, 7565 (88.7%) became actual donors. Of this donor group, no kidneys were harvested and transplanted from 271 donors,

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Table 1. Referred and Actual Deceased Organ Donors in Poland

Donor's Age	Referred Potential Donors	Excluded, Due to Medical Contraindications or the Lack of Authorization to Donation	Actual Donor	Unused Donor	Used Donor
≥65	463	105 (22.58%)	358 (77.3%)	31	327 (91.34%)
<65	8063	856 (10.61%)	7207 (89.4%)	240	6967 (96.67%)
Together	8526	961 (11.27%)	7565 (88.7%)	271	7294 (96.42%)

leaving 7294 actual used donors. Of the 13,943 kidney recipients in Poland in the years 1998 to 2013, we analyzed a group of 8206 people (81%) who had been received a transplanted kidney before April 11, 2010 and whose observation had been documented for 5 years.

In the statistical analysis both the *t* test and the χ^2 test were used.

RESULTS

Of the group of 7565 actual donors, those under 65 accounted for 95% (7207/7565) and donors 65 and over accounted for 5% (358/7565). Of the 463 potential deceased donors 65 and over, 358 were actual donors (77.32%); of the 8063 potential deceased donors under 65, 7207 were actual donors (89.4%). In the group of potential deceased donors 65 and over, the percentage of disqualification was higher than in the group of potential donors under 65 (105/463, 22.68%; and 856/8063, 10.61%, respectively). Similarly, elderly donors were more likely to become unused donors (kidney was not harvested) than younger donors (Table 1). The average age of all donors was 42.17 years and the average age of all recipients was 42.4 years. The actual 5-year donors survival rate for all grafts was 87.6% (7185/8206), and graft survival was 74.5% (6109/8206). The average age of kidney donors for recipients who survived 5 years was 41.6 years and was lower than that of kidney recipients who did not survive 5 years, which was 46.1 years.

The average age of kidney recipients who survived 5 years was 41.48 years and was also lower than the average age of kidney recipients who did not survive 5 years (48.87 years). The average age of kidney donors to recipients whose kidney transplants survived 5 years was 41.1 years; the average age of recipients whose transplants did not survive 5 years was 45.17 years. The average age of kidney recipients whose transplants survived 5 years was 41.74 years and was lower than the average age of kidney recipients whose transplants did not survive 5 years (44.33 years) (Table 2). The actual 5-year survival rate of kidney transplants from all donors >65 years was 59.2% and was significantly inferior (*P* < .0001) than from donors <65 years (75.1%). Among kidney transplants from elderly donors, the transplants functioned for 5 years in 55.3% of recipients >60 years and 60.7% of recipients <60 years of age (*P* < .0001). Kidneys transplanted from donors <65 years, after 5 years were still functioning in 67.5% of recipients >60 years and in 75.7% of recipients <60 years (*P* < .0001) (Table 3). The actual 5-year survival of kidney recipients from all donors >65 years was 75.6% and was better in the group of younger recipients (79.5% vs 65.9% in the elderly recipients; *P* < .0001). The 5-year survival of kidney recipients from donors <65 years (88.1%, *P* < .0001). Particularly good results were achieved by younger recipients. In this group, 89% recipients survived for 5 years, whereas among the elderly recipients 74.3% did so (*P* < .0001) (Table 4).

Table 2. A 5-year Survival of Both Recipient and Kidney, Depending on Age of Donor and Recipient

Kidney Recipients 1998-2013	Number of Recipients Under the 5-Year Observation	Number and Percentage of Screened Recipients (Data Completeness)	Recipient Survival (Number and Percentage)		Graft Survival (Number and Percentage)	
			Tests	Tests		
13,943	10,072	8206 (81%)	7185 (87.6%)	6109 (74.5%)		
		Average donor's age = 42.17 ± SD = 14.57	Average age of kidney donors for 7185 recipients, who survived 5 years = 41.6 ± SD = 14.6	<i>t</i> test <i>P</i> < .0001	Average age of the donor kidney transplants for 6109, which survived 5 years = 41.1 ± SD = 14.7	<i>t</i> test <i>P</i> < .0001
			Average age of donors for 1021 recipients, who did not survive 5 years = 46.1 ± SD = 14.2		Average age of the donor kidney for transplant in 2097, that did not survive 5 years = 45.17 ± SD = 14.44	
		Average recipient's age = 42.4 ± SD = 13.68	Average age of 7158 recipients, who survived 5 years = 41.48 ± SD = 13.61	<i>t</i> test <i>P</i> < .0001	Average age of 6109 kidney recipients, whose grafts survived 5 years = 41.74 ± SD = 13.65	<i>t</i> test <i>P</i> < .0001
			Average age of recipients in 1021, who did not survive 5 years = 48.87 ± SD = 12.35		Average age of 2097 kidney recipients, whose grafts do not survive 5 years = 44.33 ± SD = 13.58	

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