Old age

Moderatore: Luigi Biancone (Torino)

Presenter: Umberto Maggiore (Parma)

Systematic: Barbara Buscemi (Palermo) - Ilaria Umbro (Roma)

ERBP 2013

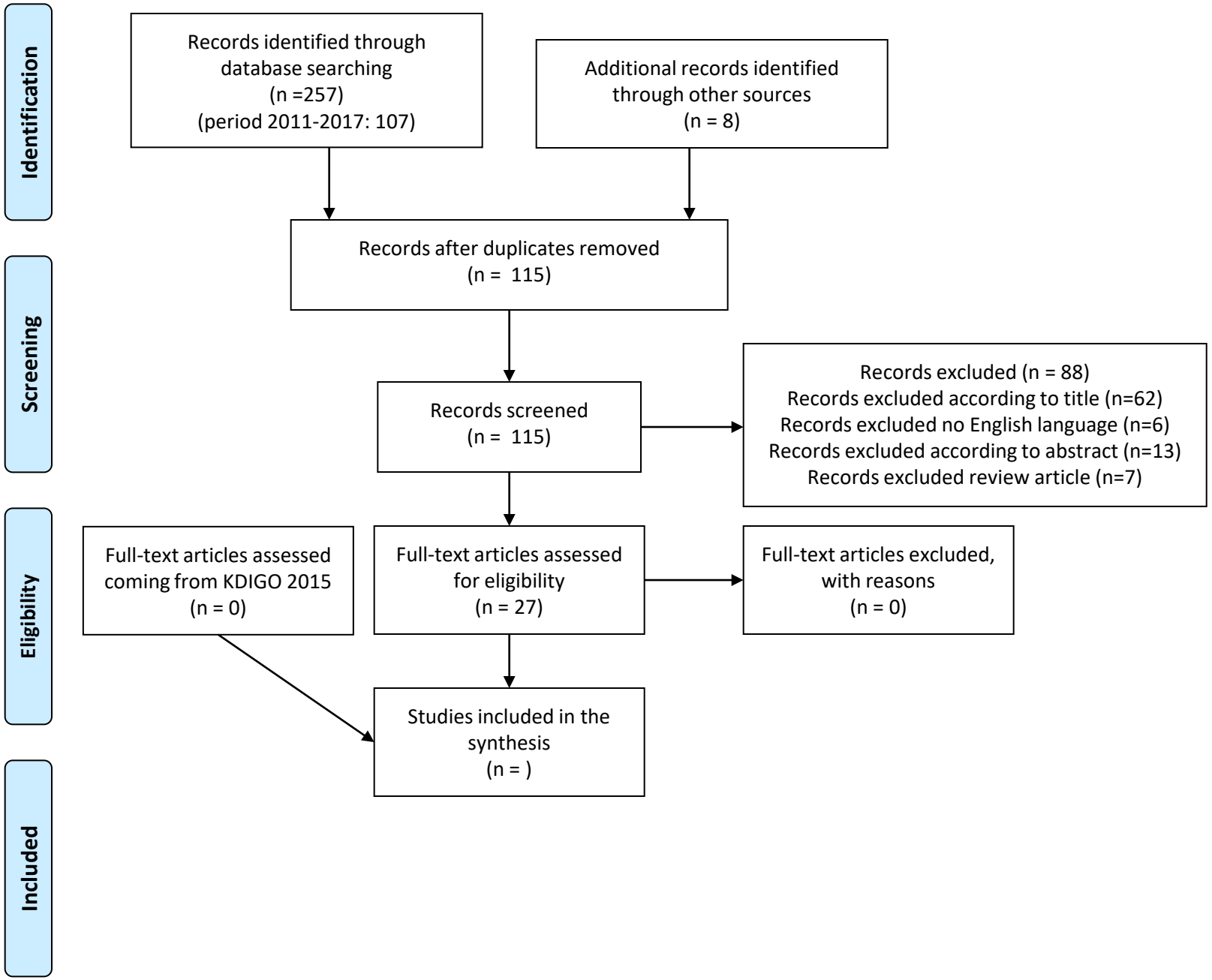
3.5 On which criteria should we select living kidney donors to optimize the risk–benefit ratio of their donation?

Old age

We recommend that old age in itself is not a contraindication to donation. (1B)

KDIGO 2015

No specific recommendations

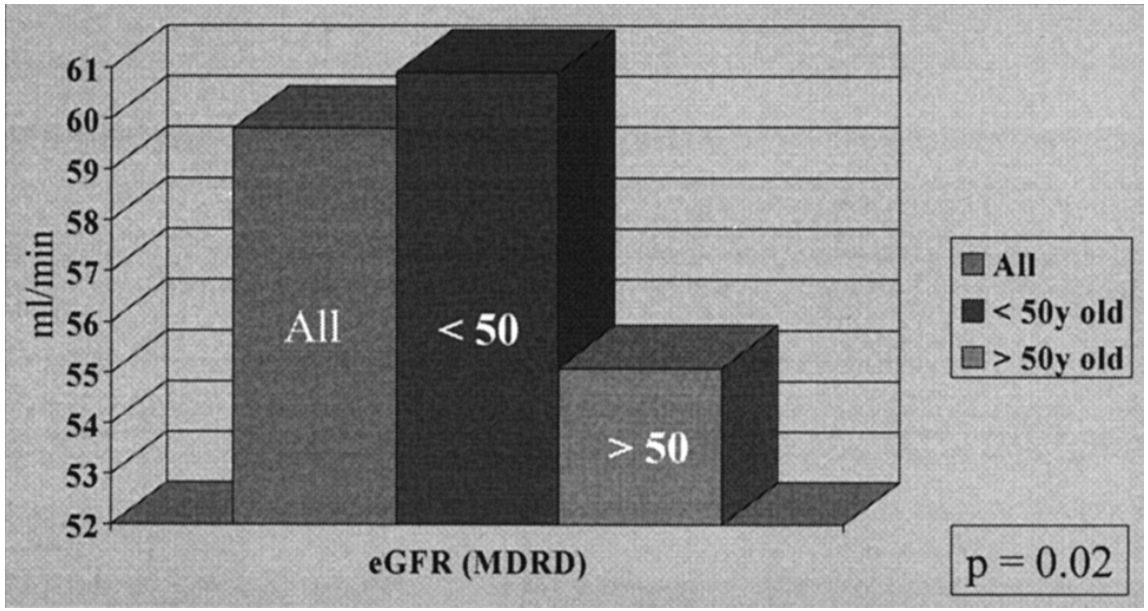

Identification
Screening
Eligibility
Included
Records identified through database searching (n =257) (period 2011-2017: 107)
Additional records identified through other sources (n = 8)
Records after duplicates removed (n = 115)
Records screened (n = 115)
Records excluded (n = 88)
Records excluded according to title (n=62)
Records excluded no English language (n=6)
Records excluded according to abstract (n=13)
Records excluded review article (n=7)
Full-text articles assessed coming from KDIGO 2015 (n = 0)
Full-text articles assessed for eligibility (n = 27)
Full-text articles excluded, with reasons (n = 0)
Studies included in the synthesis (n =)

African-American Women and Older Patients Are at Risk for a Greater Decline in Renal Function Following Living Kidney Donation

M. Alnimri, M.R. Laftavi, R. Kohli, M. Said, L. Transplantation Proceedings, 43, (2011)

Retrospective study

Medical records of 103 consecutive living donors



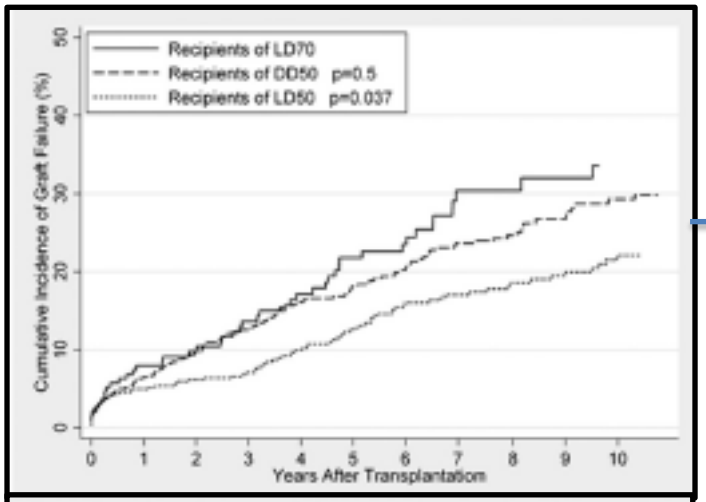
Donors older than 50 years have a greater decline in their eGFR compared to younger donors (50 years), reflecting lower eGFR predonation (older 84.7 mL/min vs younger 95.2 mL/min, P .02)

Living Kidney Donors Ages 70 and Older: Recipient and Donor Outcomes

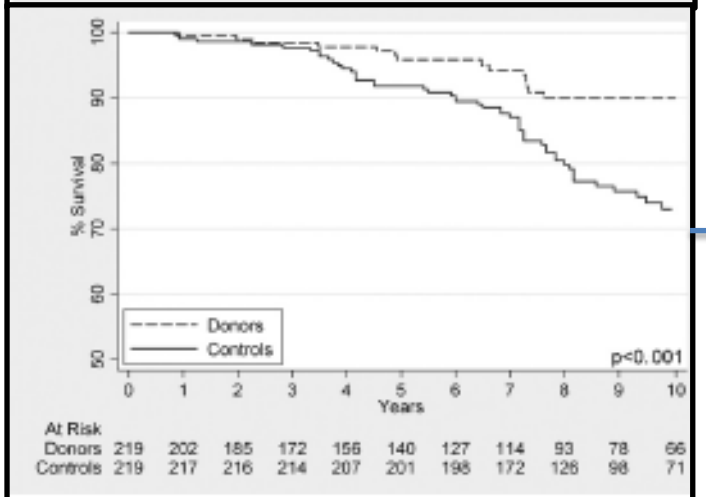
Jonathan C. Berger,Abimereki D. Muzaale, Nathan James

Clinical Journal of the American Society of Nephrology 2011

219 healthy adults aged 70 have donated kidneys at 80 of 279 centers in USA



Recipients of live donor kidneys aged 70 had a significantly higher rate of graft loss compared with recipients of younger live donor kidneys aged 50 to 59.



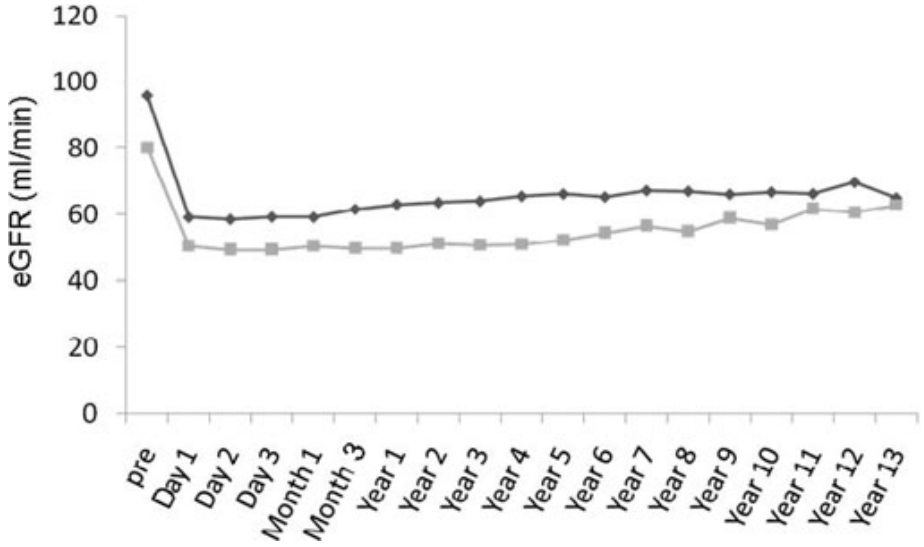
Mortality among living kidney donors aged 70 was no higher than healthy matched controls drawn from the NHANES-III cohort; Mortality was lower, probably reflecting higher selectivity among older live donors

Living Kidney Donors: Impact of Age on Long-Term Safety

L. F. C. Dolsa , N. F. M. Koka , J. I. Roodnatb

The American Society of Transplantation and the American Society of Transplant Surgeons 2011

539 consecutive live kidney donations → age < 60 (n = 422)
→ age ≥60 (n = 117).



At 5 years after donation, significantly more older donors had a GFR < 60 mL/min compared to younger donors (131 [80%] vs. 94 [31%], p<0.001). The renal function stabilized during follow-up and there were no donors with a GFR of less than 30 mL/min during follow-up

Older donors had a lower GFR before donation, but there were no differences in the mean maximum decline.

Recipient survival did not differ between transplants derived from younger and older donors (p = 0.072).

Living Donor Age and Kidney Transplant Outcomes

K. Noppakuna,b , F. G. Cosioa, , P. G. Deanc ,The American Society of Transplantation and the American Society of Transplant Surgeons 2011.

1063 recipients

Younger kidneys had a survival advantage [HR = 0.600 (0.380–0.949), p = 0.029] while older kidneys had a survival disadvantage [HR =2.217 (1.507–3.261), p < 0.0001].

in recipients <50 years old

Table 4: Relationship between death-censored graft survival, donor-recipient age difference (D-Rage) and other variables

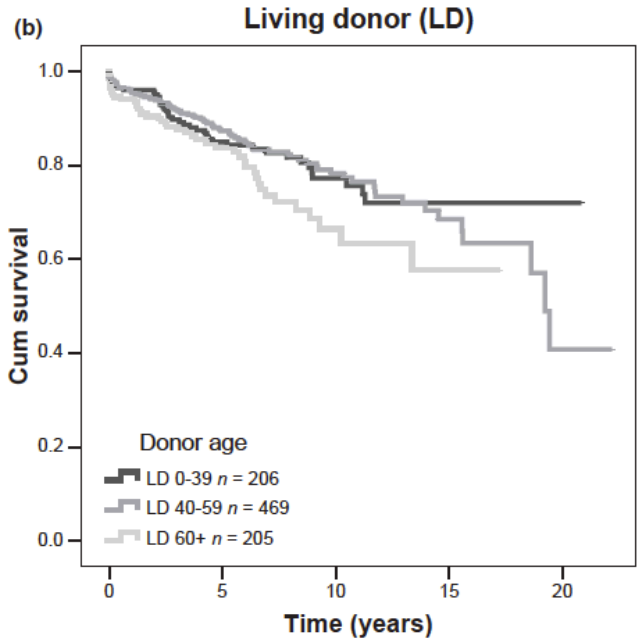
	Model 1: Pretransplant variables		Model 2: Posttransplant variables		Model 3: Posttransplant variables	
Variables	HR (95% CI)	p	HR (95% CI)	p	HR (95% CI)	p
D-Rage (years)	1.019 (1.002, 1.037)	0.031	1.020 (1.005, 1.036)	0.008	1.009 (0.988, 1.031)	0.389
Donor GFR[1]	0.976 (0.945, 0.998)	0.034	–	–	–	–
HLA mismatch	1.258 (1.053, 1.504)	0.012	–	–	–	–
Months on dialysis	1.000 (1.000–1.001)	0.302	–	–	–	–
DGF	–	–	2.895 (0.893, 9.384)	0.076	3.782 (0.856, 16.709)	0.079
GFR[1] at 1 year	–	–	0.92 (0.907, 0.946)	<0.0001	0.936 (0.910, 0.962)	<0.0001
Proteinuria at 1 year (grams/day)	–	–	–	–	1.520 (1.291, 1.789)	<0.0001

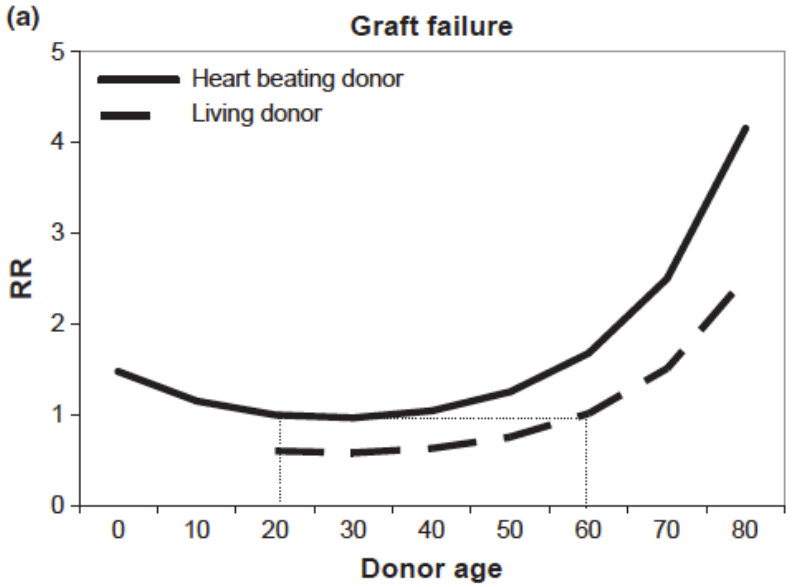
[1]GFR in mL/min/1.73 m^2.

D-Rage is related to graft survival independently of all other posttransplant variables in this analysis, including graft function at 1 year.

The relative importance of donor age in deceased and living donor kidney transplantation Mirjam Laging,1 Judith A. Kal-van Gestel
Transplant International 2012, 25 (2012) 1150

941 patients received a deceased donor kidney and 880 a living donor kidney





In Kaplan–Meier analysis living donor age appears not to have a significant influence on graft survival censored for death.

The risk in deceased donor transplantation is almost twice that of living donor transplantation

Donor age had a quadratic influence on the risk of graft failure. Between the ages of 20 -40 years graft failure risk hardly changed (relative risk, respectively, 0.60 and 0.63 in comparison to 20-year-old deceased donor). However, between living donor ages of 40 and 60 years the relative risk of graft failure increased from 0.63 to 1.01 in comparison to 20-year-old deceased donor.

Donor-Recipient Age Difference and Graft Survival in Living Donor Kidney Transplantation

Y.J. Lee, J.H. Chang, H.N. Choi, J.Y. Jung

Transplantation Proceedings, 44, 270–272 (2012

Primary living kidney transplantation patients who were divided into two groups

- 75 subjects with donor-recipient age difference < 20
- 25 subjects with donor-recipient age difference > 20

Outcome	< 20 y	≥20 y	*P* value
Serum creatinine (mg/dL)			
1 y	1.1 ± 0.5	1.5 ± 0.5	.01
5 y	1.5 ± 1.0	2.0 ± 1.3	.04
Acute rejection rate (%)	10.7	32	.02

Mean serum creatinine values at 1 year posttransplant were associated with increased creatinine values at 5 years and related to an increased risk of an acute rejection episode within the first year posttransplant for the donor-recipient age difference > 20 group

Older kidneys, when transplanted into younger recipients, can show a greater decline in renal function because of the lower functional renal mass, age-related predisposition to ischemia, and limited capacity to respond appropriately to physiological challenges.

No difference in patient survival and deathcensored graft survival rates within the first 5 years.

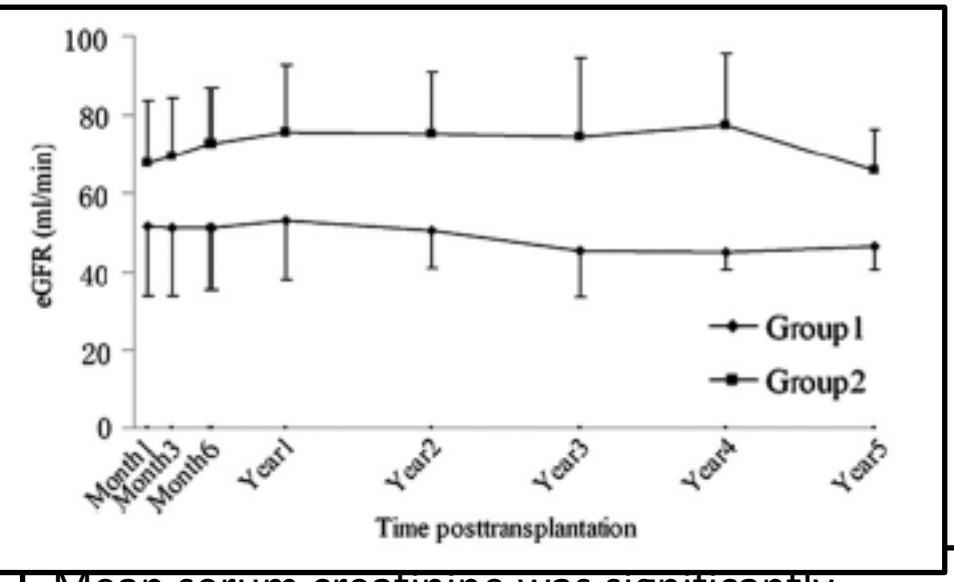
Kidney transplantation from living related donors aged more than 60 years: a single center experience

Yifu Li, Jun Li, Qian Fu, Lizhong Chen, Jiguang Fei

Ren Fail, 2013; 35(9): 1251–1254

Group 1= 21 patients who received kidneys from donors older than 60 years

Group 2= control group consisted of 110 patients who received renal transplants from ideal donors, aged 18 to 45 years



Mean serum creatinine was significantly higher in Group 1 at all the time points we selected, while eGFR was consistently lower .

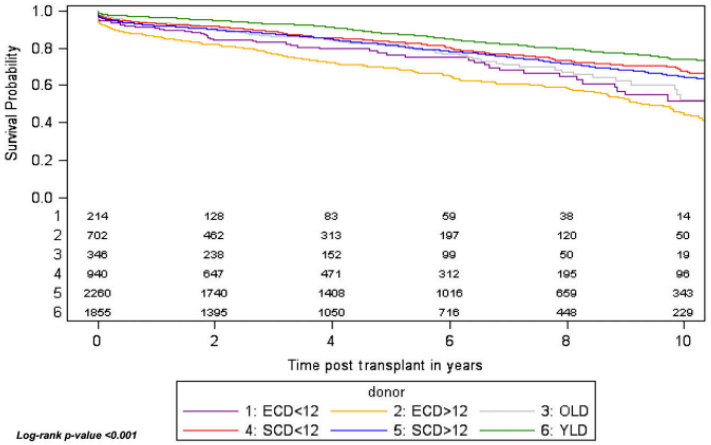
1-, 3- and 5-year patient survival was 100%, 100% and 100% for Group 1, and 97%, 97% and 97% for Group 2.

No significant difference was observed in terms of patient survival (p. 0.447).

Corresponding death-censored graft survival was 100%, 100% and 100% for Group 1, and 98%, 98% and 96% for Group 2. It did not significantly differ in the two groups

Outcomes of Kidney Transplantation From Older Living Donors
Wai H. Lim,1,2,8 Philip Clayton,2,3 Germaine Wong,2,4
Transplantation Volume 95, Number 1, January 15, 2013

Australia and New Zealand Dialysis and Transplant Registry
6,317 renal transplant recipients included: 14.9% received SCD less than 12, 35.8% received SCD of 12 or greater, 3.3% received ECD less than 12, 11.1% received ECD of 12 or greater, 1,855(29.4%) received YLD, and 346 (5.5%) received OLD kidneys.



Patient survival was equal, but graft outcomes for recipients of OLD kidneys were inferior to those obtained with YLD and SCD kidneys.

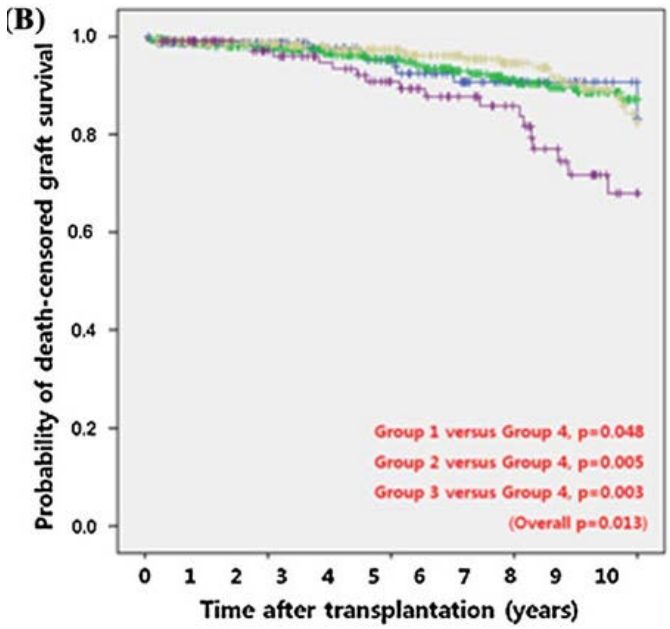
Enhanced Significance of Donor–Recipient Age Gradient as a Prognostic Factor of Graft Outcome in Living Donor Kidney Transplantation

Milljae Shin, Jae Berm Park

World J Surg (2013) 37:1718–1726

968 consecutive adult LDKT recipients were enrolled in our study

Donor–recipient age gradient (DRAG)



	Overall graft survival rate (%)			
Allocation	1yr	3yr	5yr	10yr
Old-to-old	90.4	90.4	84.0	84.0
Old-to-young	96.7	92.8	88.9	62.4
Young-to-old	96.8	91.1	84.1	77.1
Young-to-young	97.1	97.1	93.6	83.2

Increased DRAG is associated with development of graft rejection, increased post-transplant serum creatinine levels, and reduced overall and deathcensored graft survival.

Live donor kidney transplantation in India: effects of donor and recipient age on graft survival

Mrinal Pahwa, Arun Chawla, Tanveer I. Dar, Yusuf Saifee Ren Fail, 2014; 36(2): 222–224

532 patients who underwent kidney transplant from January 2008 till March 2011

- Group A (donor age 20–40 years, recipient age <50 years)
- Group B (donor age 20–40 years, recipient age >50 years)
- Group C (donor age 40–60 years, recipient age <50 years)
- Group D (donor age 40–60 years, recipient age >50 years)
- Group E (donor age >60 years, recipient age <50 years)
- Group F (donor age >60 years, recipient age >50 years).

	Group A	Group B	Group C	Group D	Group E	Group F
Number of patients	61	56	61	31	46	23
Acute rejection (%)	14.75	14.28	18	16.12	19.3	23.4
Serum creatinine						
1 yr	1.19	1.4	1.68	1.46	1.6	1.83
3 yr	1.27	1.53	1.82	1.64	1.72	1.95
Graft survival						
1 yr	96.72	94.64	91.8	93.54	91.3	86.95
3 yr	91.8	92.85	88.52	90.32	89.13	86.95

Kidney allografts from older donors displayed a higher incidence of acute graft rejection and higher serum creatinine values at 1 and 3 years after kidney transplantation. These factors did not affect graft survival, which was similar, although a little lower, comparing older versus younger donors.