LIVING KIDNEY DONATION :IS IT REALLY SAFE ?

By

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INTRODUCTION

- **Living kidney donation is experiencing a kind of revival in recent years. The severe shortage of cadaveric kidneys and the superior functional results are the two major reasons.**

INTRODUCTION

- **Furthermore, living donation allows preemptive renal transplantation. Most transplant centers regard living donation as the preferred source despite the potential associated morbidity.**

Arunachalam C et al ,NDT,2013 (Lancashire)

- **Living donor kidney transplant reduce the number of individuals on waiting lists for deceased donor transplants, typically last longer. It allows elective surgery, shorter hospital stays, Planned desensitisation of recipients, Shorter periods spent on dialysis and reduce cost.**

Baily et al,BMJ; 2016 (Pristol)

Evaluation of Donors

Table 1. Evaluation of donors

- Blood group, HLA typing and cross-match
- Assessment of BP and body mass index
- Complete physical examination
- Complete blood count and coagulation profile
- Electrolytes and liver function tests
- Fasting glucose and lipid profile
- HbA1c or glucose tolerance test if high risk for diabetes
- Pregnancy test (if indicated)
- Infection screen
  - hepatitis B and C
  - syphilis
  - HIV
  - cytomegalovirus and Epstein–Barr virus
  - screening for tuberculosis
  - if indicated: toxoplasma, strongyloides, trypanosoma, West Nile, malaria and others
- Estimation of GFR by 24-h creatinine clearance or measurement of GFR using iodinated or radioactive isotopes
- Urinalysis
- Urine culture if indicated
- Assessment of proteinuria: 24-h protein excretion or spot protein/creatinine ratio
- Chest radiograph
- Electrocardiogram
- Stress test and echocardiography as needed
- Assessment of renal anatomy: Spiral computed tomography or magnetic resonance angiography
- Cancer screening: prostate-specific antigen, colonoscopy, mammography, Pap smear as recommended for the general population

Kher&Mandelbrot,CJASN,2012 (Harvard)

Table 2. Absolute and relative contraindications

Absolute Contraindications	Relative Contraindications
Age <18 yr	Age 18–21 yr
Mentally incapable of making informed decision	Creatinine clearance <2 SD below mean for age
Uncontrolled hypertension or hypertension with end organ damage	Hypertension in non-Caucasian race
Diabetes	Hypertension in young donor
BMI >35	Prediabetes in young donor
Active malignancy or incompletely treated malignancy	BMI >30
Untreated psychiatric conditions	Microalbuminuria or proteinuria
Nephrolithiasis with high likelihood of recurrence	Bleeding disorder
Evidence of donor coercion	History of thrombosis or embolism
Persistent infection	Nephrolithiasis
	History of malignancy, especially if metastatic
	Significant cardiovascular disease

Kher&Mandelbrot,CJASN,2012

Risks of living kidney donation?
I. Short term risks

- **Mortality** 0.01 and 0.03%.
- **perioperative complications**, such as wound infection and bleeding, occur in about 7.3% of cases.
- **GFR** of the donor roughly halves Immediately after nephrectomy, However, a year after donation, this is expected to increase to 60-70% of pre-donation level due to adaptive hyperfilteration in the remaining kidney.

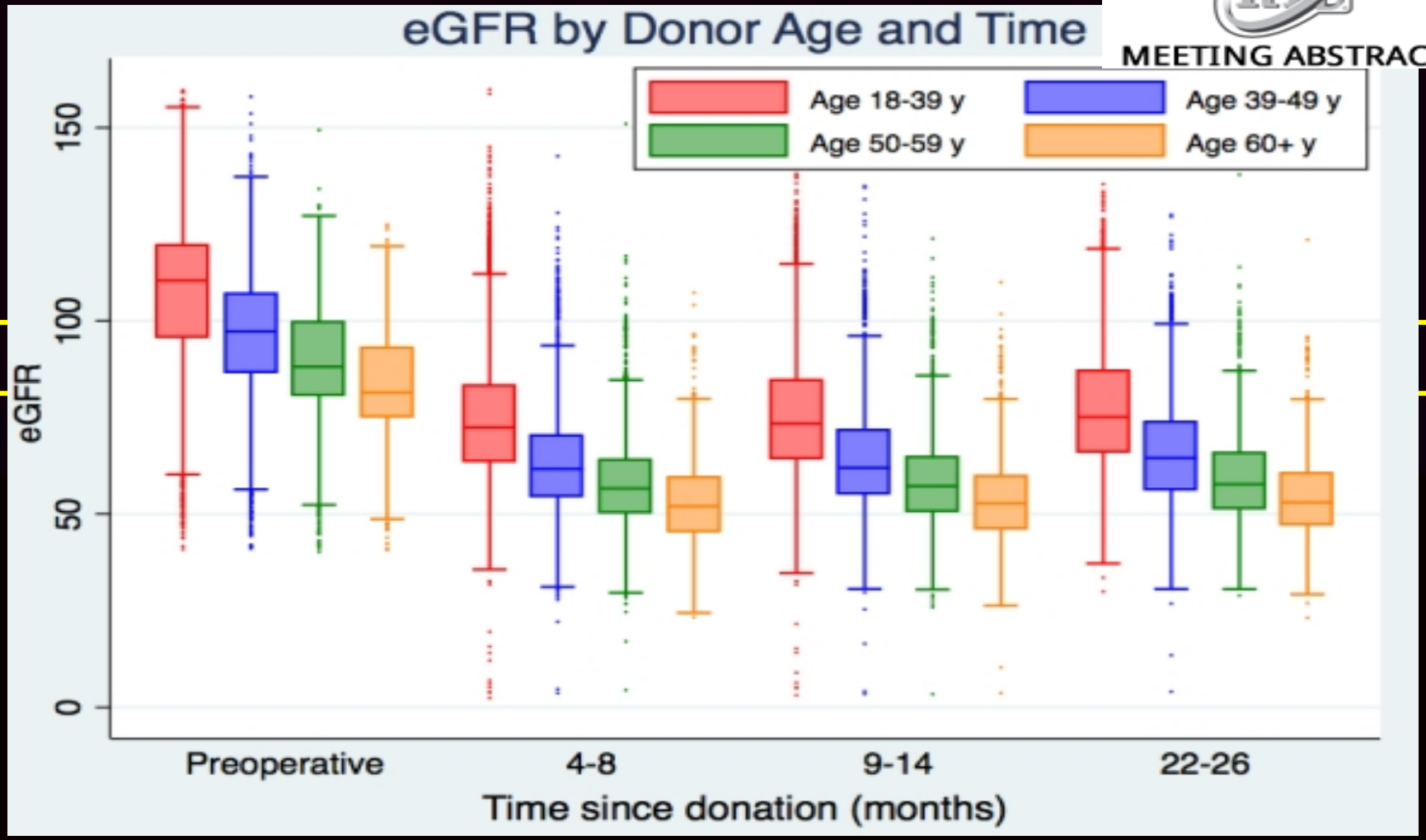
Bailey et al, BMJ 2016(Pristol)

Short-term post donation renal function in living kidney donors.

- The median (IQR) initial 6-month decline was 34.6 (26.5-41.2)%.
- In an adjusted model, higher age, BMI, systolic blood pressure (SBP), educational level, African-Americans (AA), and males were associated with sharper declines (all $p<0.01$).
- Following the initial drop, % eGFR recovery increased per year by ${}_{1.95}2.14_{2.32}$% for donors aged 18-39, and ${}_{1.21}1.62_{2.03}$% for donors aged 60+ (age/time interaction $p<0.001$).

Fahmy L et al. ATC 2016

Short-term post donation renal function in living kidney donors.



Fahmy L et al. ATC 2016

Adjusted model of post-donation eGFR recovery

Donor Characteristics	Difference in % eGFR recovery
Per year of follow-up for ages	Fahmy L et al. ATC 2016
18-39y	1.95 **2.14** 2.32
40-49	1.32 **1.53** 1.74
50-59	0.98 **1.21** 1.45
60+	1.21 **1.62** 2.03 (P<0.001)
Male	-1.79 **1.52** 1.26
African-Americans (vs White)	-1.87 **-1.45** -1.03
Hispanic(vs White)	1.23 **1.61** 2.00 (P<0.001)
Others	-0.64 **-0.04** 0.57 (P<0.05)
(BMI,SBP,Education,smooking).	

Short-term post donation renal function in living kidney donors.

- AA were associated with $_{1.87}1.45_{1.03}$% decrease, and Hispanics were associated with $_{1.23}1.61_{2.00}$% increase in % eGFR recovery compared to Whites, respectively (all p<0.001).
- Higher BMI, SBP, educational level, smoking, and males were associated with lower % eGFR recovery (all p<0.05).

CONCLUSION: Post-donation eGFR decline and recovery varies based on donor characteristics. Younger donors have more rapid short-term post-donation eGFR recovery.

Fahmy L et al. ATC 2016

Long-term Renal Function in Living Kidney Donors Who Had Histological Abnormalities at Donation

Fahmy l et al; Transplantation June,2016

TABLE 2.

Prevalence of histological abnormalities detected at time of kidney donation among living kidney donors

Histological abnormalities (n = 310)	n (%)
Glomerulosclerosis (gs)	
<10%	200 (64.5)
≥10%	61 (19.7)
Missing	49 (15.8)
Interstitial fibrosis and tubular atrophy (IFTA)	
IFTA0—minimal	234 (75.5)
IFTA1—mild	70 (22.6)
IFTA2—moderate	4 (1.3)
IFTA3—severe	0 (0.0)
Missing	2 (0.7)
Mesangial matrix increase (mm)	
mm0—no increase	280 (90.3)
mm1-3—increase	15 (4.8)
Missing	15 (4.8)
Arteriolar hyalinosis (ah)	
ah0—no ah	188 (60.7)
ah1—mild-to-moderate	96 (31.0)
ah2—moderate-to-severe	2 (0.7)
ah3—severe	1 (0.3)
Missing	23 (7.4)
Vascular fibrous intimal thickening (cv)	
cv0—no cv	185 (59.7)
cv1—mild-to-moderate	92 (29.7)
cv2—moderate-to-severe	9 (2.9)
cv3—severe	1 (0.3)
Missing	23 (7.4)
Any histological abnormalities	
Present	204 (65.8)
Absent	106 (34.2)

Long-term Renal Function in Living Kidney Donors Who Had Histological Abnormalities at Donation

Fahmy l et al;Transplantation June,2016

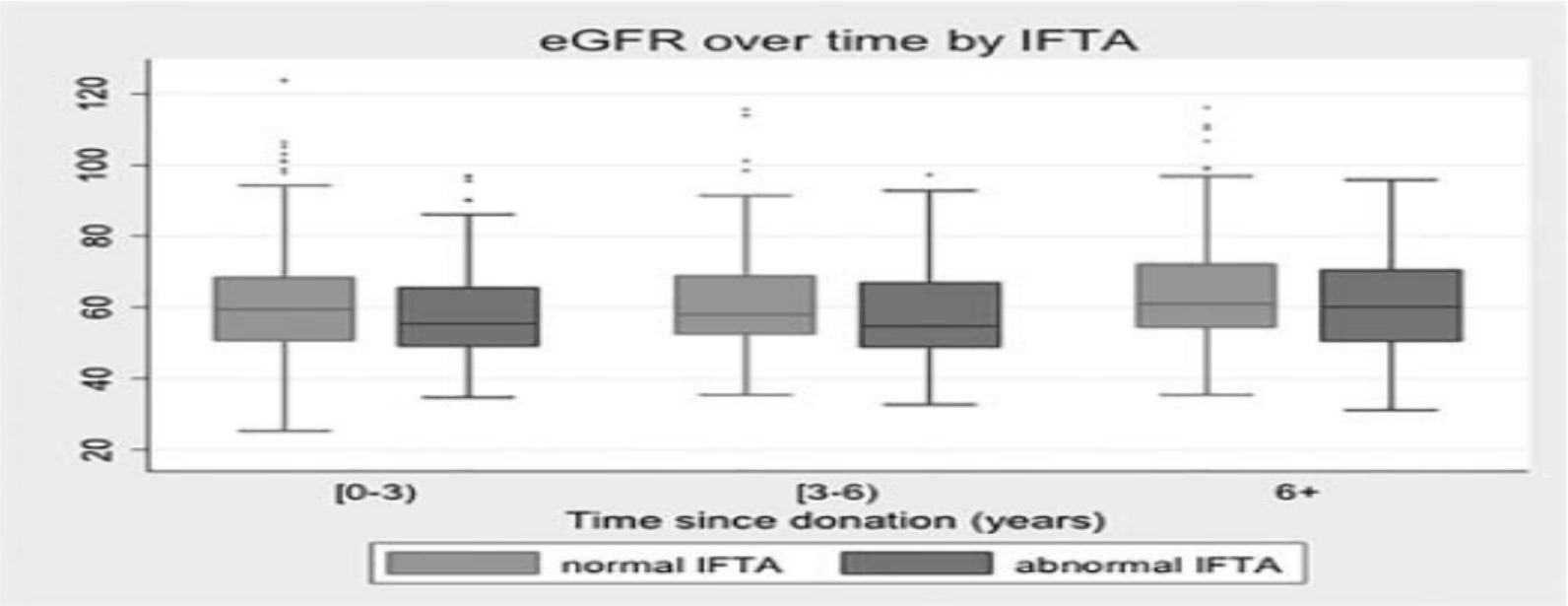


FIGURE 1. Boxplots of postdonation eGFR of living kidney donors over time, by status of interstitial fibrosis and tubular atrophy (IFTA). Time since donation is categorized into three bins: [0-3) years, [3-6) years, and 6+ years. IFTA is categorized as abnormal (IFTA ≥1) vs. normal (IFTA <1).

After adjusting for donor clinical characteristics and time since donation, subclinical IFTA was associated with a 5-mL/min/1.73 m2 decrease of post-donation eGFR

II. Longer term risks

- Cardiovascular risk (hypertension ,Ischemic Heart Disease..)
- Diabetes mellitus.
- Gestational hypertension and pre-eclampsia.
- Proteinurea.
- Malignancy.
- Mental health changes.
- Infectious complications (as TB).
- Chronic liver disease.
- End –stage Kidney Disease.

Rizvi et al ,transplantation,2016(Pakistan)

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Long-Term Consequences of Kidney Donation

Hassan N. Ibrahim, M.D., Robert Foley, M.B., B.S., LiPing Tan, M.D., Tyson Rogers, M.S., Robert F. Bailey, L.P.N., Hongfei Guo, Ph.D., Cynthia R. Gross, Ph.D., and Arthur J. Matas, M.D. (**Minnesota**)

METHODS

We ascertained the vital status and lifetime risk of ESRD in 3698 kidney donors

CONCLUSIONS

Survival and the risk of ESRD in carefully screened kidney donors appear to be similar to those in the general population. Most donors who were studied had a preserved GFR, normal albumin excretion, and an excellent quality of life.

Long-Term Consequences of Kidney Donation

N ENGL J MED 360;5 NEJM.ORG JANUARY 29, 2009

Hassan N. Ibrahim, M.D., Robert Foley, M.B., B.S., LiPing Tan, M.D., Tyson Rogers, M.S., Robert F. Bailey, L.P.N., Hongfei Guo, Ph.D., Cynthia R. Gross, Ph.D., and Arthur J. Matas

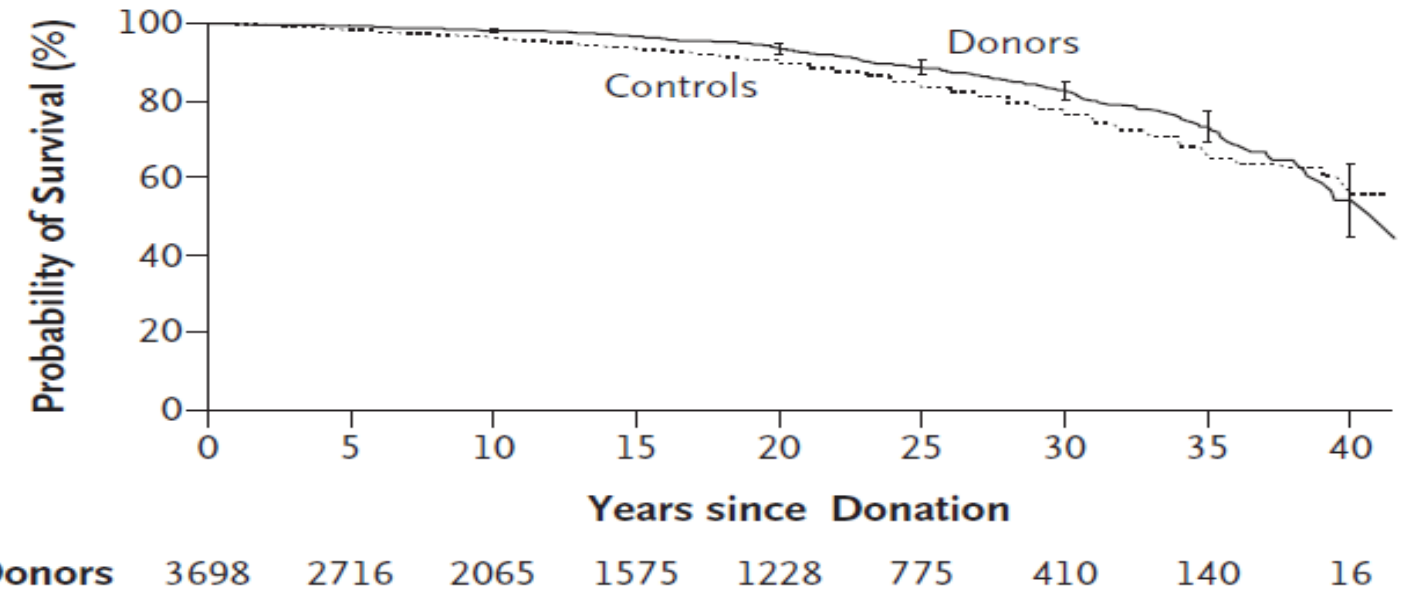


Figure 1. Survival of Kidney Donors and Controls from the General Population.

I bars at 5-year intervals indicate 95% confidence intervals for the probability of survival among kidney donors.

Long-Term Consequences of Kidney Donation

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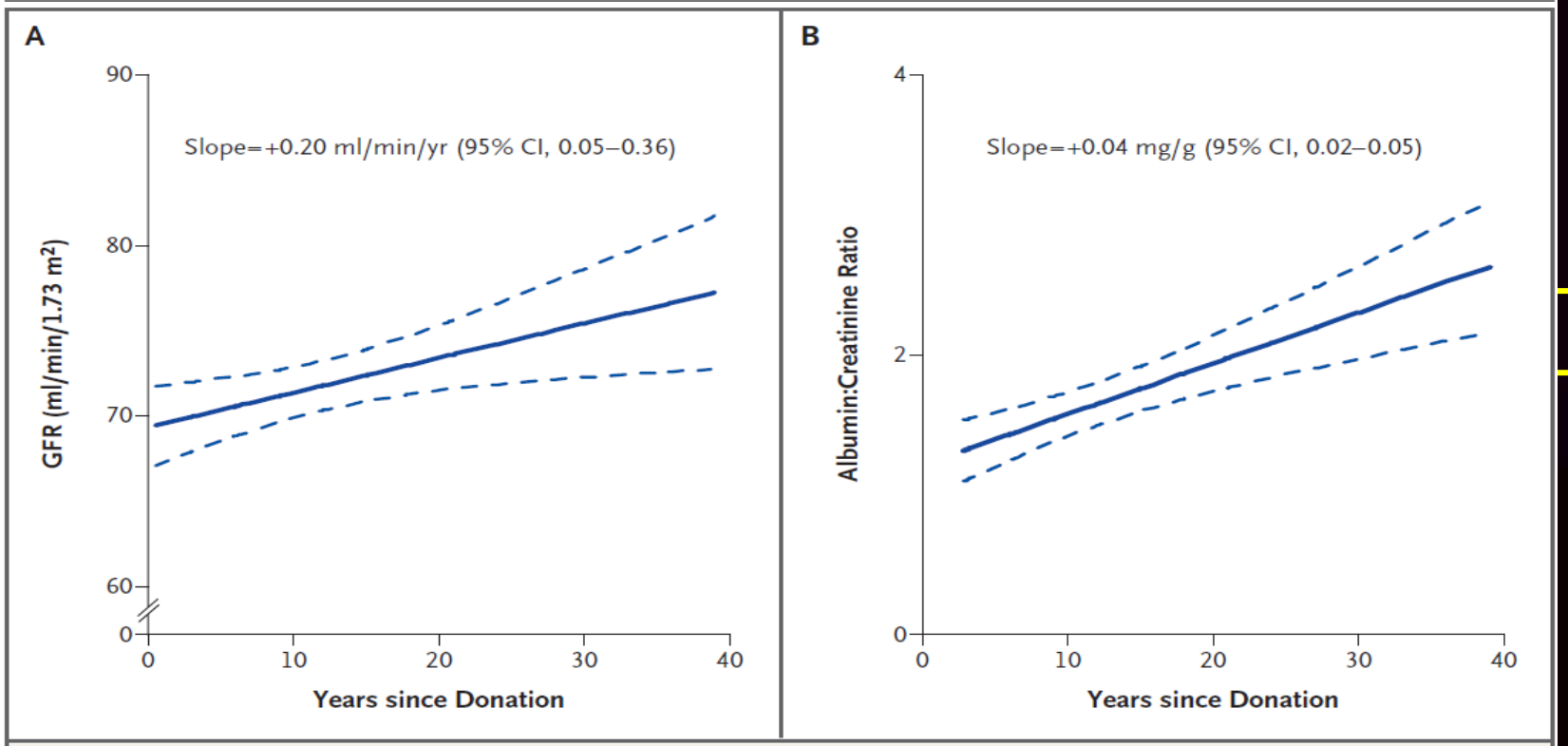

Figure 2. Glomerular Filtration Rate (GFR) and Urinary Albumin Excretion According to Time since Donation.

Panel A shows the GFR, and Panel B shows log-transformed values for the ratio of urinary albumin to creatinine. In each panel, the solid line indicates the regression line, and the dotted line, the 95% confidence interval.

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Table 1. Multivariable Risk of Reduced Iohexol Glomerular Filtration Rate (GFR), Albuminuria, and Hypertension in 255 Kidney Donors.*

Variable	Odds Ratio (95% CI)	P Value
Iohexol GFR <60 ml/min/1.73m²		
Age, per year	1.15 (1.08–1.21)	<0.001
Time since donation, per year	0.87 (0.79–0.95)	0.003
Body-mass index, per unit	1.12 (1.02–1.23)	0.02
Current smoker	0.42 (0.17–1.05)	0.06
Female sex	3.11 (1.11–8.67)	0.03
Albuminuria		
Time since donation, per year	1.12 (1.05–1.20)	<0.001
Female sex	0.31 (0.12–0.79)	0.01
Hypertension requiring medication		
Age, per year	1.09 (1.04–1.13)	<0.001
Body-mass index, per unit	1.12 (1.04–1.21)	0.003

Long-Term Consequences of Kidney Donation

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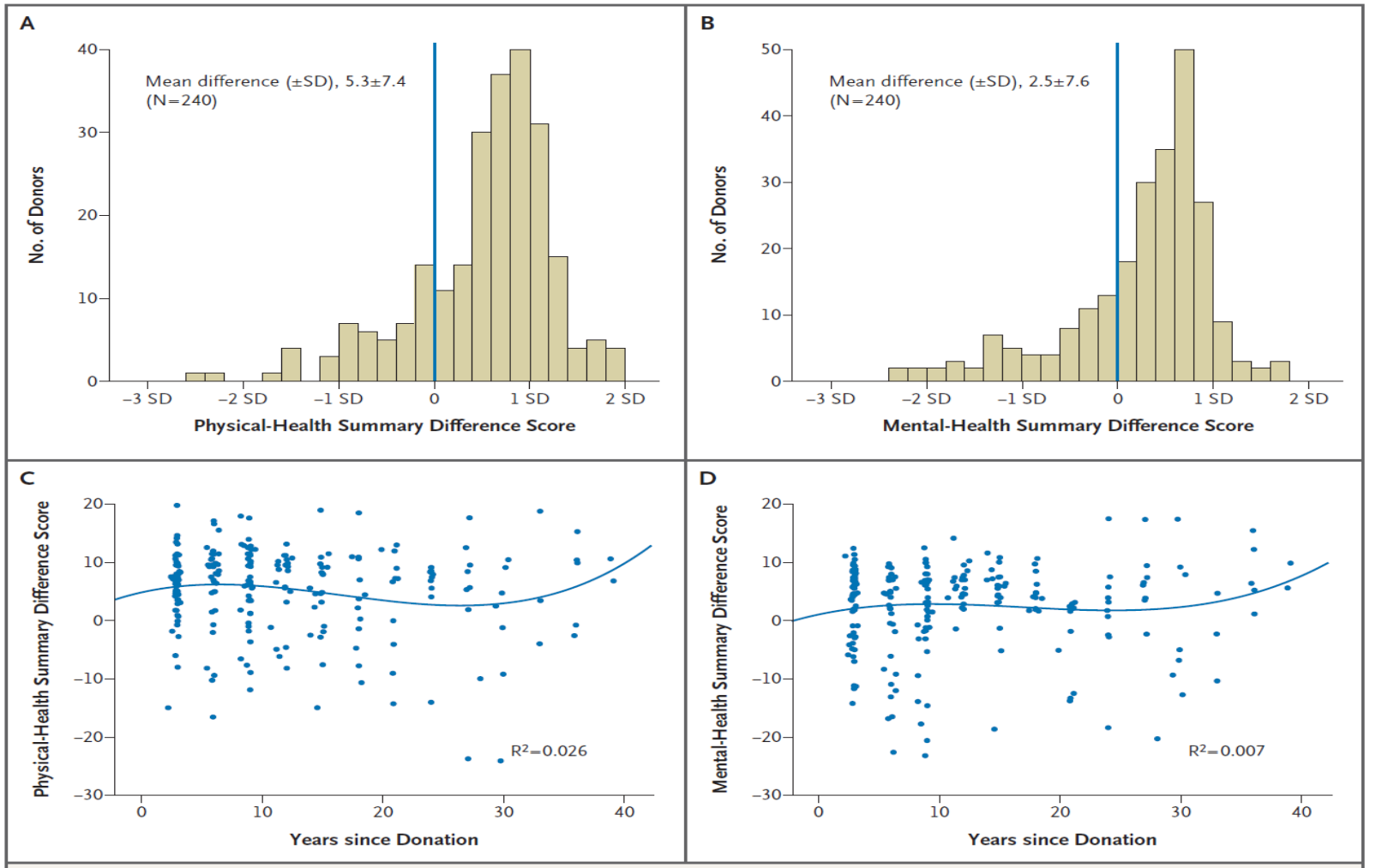

Figure 3. Quality-of-Life Scores for Kidney Donors.

Long-Term Non–End-Stage Renal Disease Risks After Living Kidney Donation

A. J. Matas[1,*], R. E. Hays[2] and H. N. Ibrahim[3]

Table 2: Risk factors for postdonation diabetes (n = 3979), showing hazard ratios (95% CIs)

Risk factors	HR (95% CI)	p-value
Age (per year)	1.01 (1.0–1.02)	0.06
Female	0.78 (0.6–1.0)	0.05
BMI (per kg/m^2)	1.13 (1.11–1.16)	<0.0001
Fasting blood glucose (per mg/dL)	1.01 (1.01–1.02)	<0.0001
Year of donation (per year)	1.02 (1.0–1.04)	0.10
ESRD from diabetes	1.37 (0.6–3.14)	0.45
ESRD from glomerulonephritis	0.84 (0.63–1.12)	0.23
Serum creatinine (per mg/dL)	1.33 (0.49–3.56)	0.57
eGFR (per mL/min/1.73 m^2)	0.99 (0.99–1.01)	0.44
SBP (per mmHg)	1.01 (1.0–1.02)	0.26
DBP (per mmHg)	1.0 (0.99–1.01)	0.98
Smoking	1.51 (1.15–1.98)	0.002
Related to the recipient	0.67 (0.41–1.1)	0.11

Adjusted for age, gender, BMI, year of donation, and fasting blood glucose level.

American Journal of Transplantation 2016;

Long-Term Non–End-Stage Renal Disease Risks After Living Kidney Donation

A. J. Matas[1,*], R. E. Hays[2] and H. N. Ibrahim[3]

Table 3: Risk factors for the development of postdonation hypertension (n = 3979), showing hazard ratios (95% CIs)

Risk factors	HR (95% CI)	p-value
Hyperlipidemia	5.76 (4.80–6.91)	<0.0001
DBP (per mmHg)	1.04 (1.03–1.05)	<0.0001
Smoking	1.60 (1.32–1.94)	<0.0001
eGFR, per mL/min/1.73 m^2	0.99 (0.99–1.00)	0.0003
Fasting glucose (per mg/dL)	1.01 (1.00–1.01)	0.013
White	0.63 (0.42–0.94)	0.02
Family history of HTN	1.01 (0.83–1.23)	0.06
BMI (per kg/m^2)	1.02 (1.00–1.04)	0.10
Male	1.17 (0.97–1.40)	0.10

Adjusted for age, sex, race, family history of HTN, hyperlipidemia, smoking, BMI, fasting blood glucose level, SBP and DBP, and eGFR.

American Journal of Transplantation 2016;

Long-Term Non–End-Stage Renal Disease Risks After Living Kidney Donation

A. J. Matas[1,*], R. E. Hays[2] and H. N. Ibrahim[3]

Table 4: Risk factors for postdonation psychosocial problems (in the RELIVE study, references 26–29)

Decreased health-related quality of life
Physical health
Obesity
History of psychiatric difficulties
Nonwhite race
Mental health
History of psychiatric difficulties
Depression
Nonwhite race
Longer recovery time
Younger age at time of donation
Heavier financial burden
Feeling of moral obligation to donate
Decreased satisfaction with life
Financial difficulties with donation
Longer recovery time
Poor overall donor experience
Donor complications
Psychological difficulties
Recipient graft failure

American Journal of Transplantation 2016;

Original Clinical Science—General

Long-term Safety of Living Kidney Donation in an Emerging Economy

S. Adibul Hasan Rizvi, FRCS,[1] Mirza Naqi Zafar, PhD,[2] Fatema Jawad, FRCP,[3] Tahir Aziz, MD,[4] Zafar Hussain, MS,[1]

- **3748 donors , 2696 (72%) were in regular yearly follow-up for up to 27 years.**
- **All-cause mortality of 4.0/10 000 person year.**
- **Six (0.2%) developed end-stage renal disease 5 to 17 years after donation, (2.7/10 000 person years).**
- **Proteinuria greater than 1000mg/24 hours developed in 28 patients (1%), hypertension in 371 patients (13.7%), and diabetes in 95 patients (3.6%).**
- **Creatinine clearance fell from109.8 ± 22.3mL/min per 1.73m2 pre-donation to 78 ± 17 at 1 year, 84 ± 19 at 5 years, and 70 ± 20 at 25 years.**
- **significantly higher fasting glucose and hypertension in nondonors.**

(*Transplantation* 2016;100: 1284–1293) ***(Pakistan)***

Long-term Safety of Living Kidney Donation in an Emerging Economy

S. Adibul Hasan Rizvi, FRCS,[1] Mirza Naqi Zafar, PhD,[2] Fatema Jawad, FRCP,[3] Tahir Aziz, MD,[4] Zafar Hussain, MS,[1] Altaf Hashmi, MS,[1] Manzoor Hussain, MS,[1] Fazal Akhtar, FRCP,[4] Ejaz Ahmed, FRCP,[4] Rubina Naqvi, MD,[4] and S A Anwar Naqvi, MBBS, MHPE[1]

TABLE 5.

Multivariate risk factor analysis for postdonation impaired renal function, proteinuria and hypertension

Factors	Odds Ratio	*P*
(A) CrCl < 60 mL/min per 1.73 m^2		
Age at donation (>40 y ≤ 40 y)	2.8	<0.001
Predonation CrCl (≤80 vs >80 mL/min)	1.7	0.03
(B) Persistent proteinuria >300 mg/24 hr		
Pre donation protein (>150 vs ≤150)	2.1	0.006
Male sex	1.8	0.006
Smoking	2.3	0.001
Postdonation hypertension	2.3	0.001
Nephrectomy donation (>10 yr vs ≤10 yr)	3.5	<0.001
(C) Hypertension		
Age at donation (>40 vs ≤40)	1.5	0.002
Predonation BMI (≥25 vs <25)	1.7	<0.001
Predonation systolic BP (>130 vs ≤130)	1.8	<0.001
Predonation diastolic BP (>80 vs ≤80)	1.6	0.001
Nephrectomy period (>5 yr vs ≤5 yr)	4.8	<0.001

CrCl < 60 was adjusted for time since donation >5 years, persistent proteinuria was adjusted for systolic BP >130, diastolic BP >80 and CrCl < 80 at donation. Hypertension was adjusted for Cr Cl <80 at donation.

(*Transplantation* 2016;100: 1284–1293)

Long-term Safety of Living Kidney Donation in an Emerging Economy

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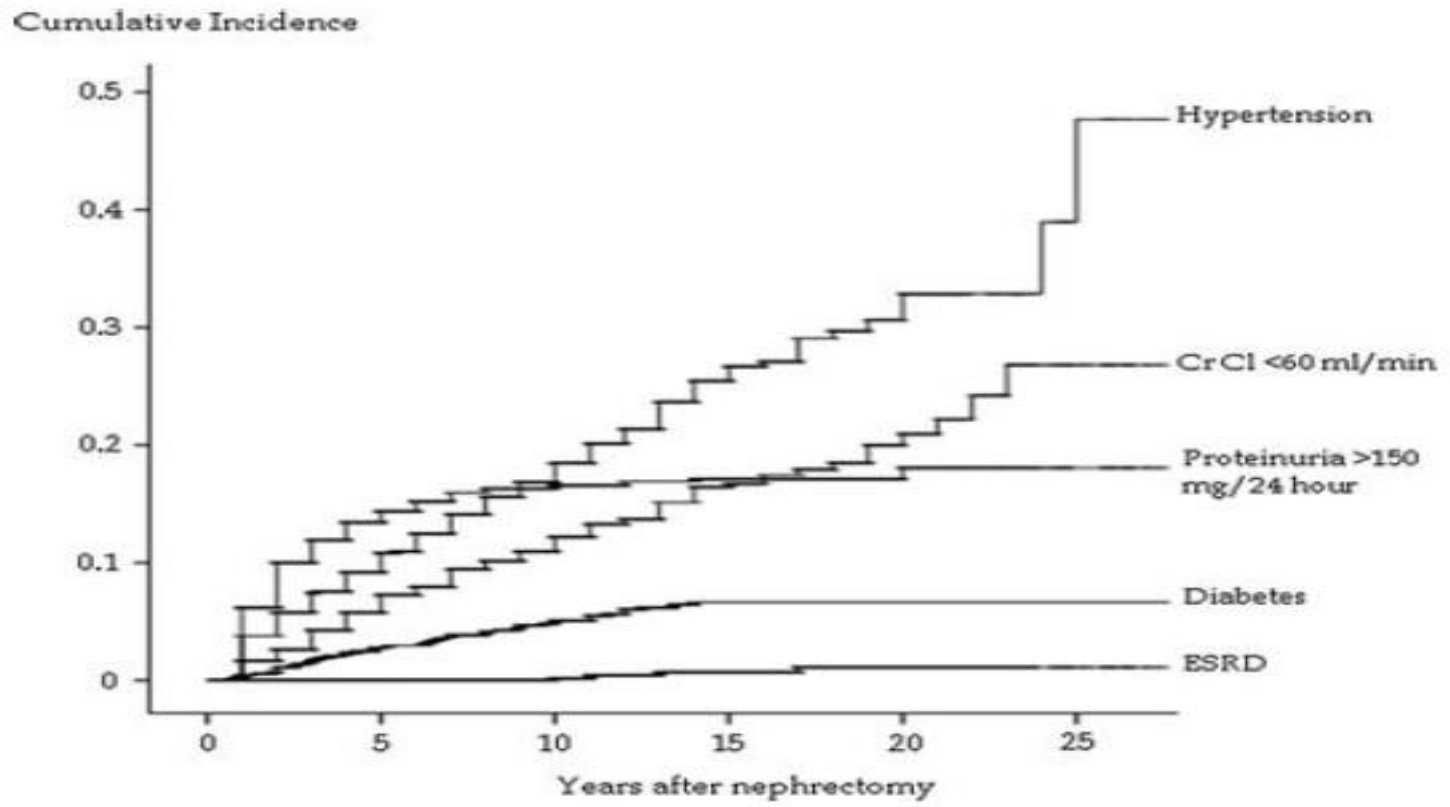
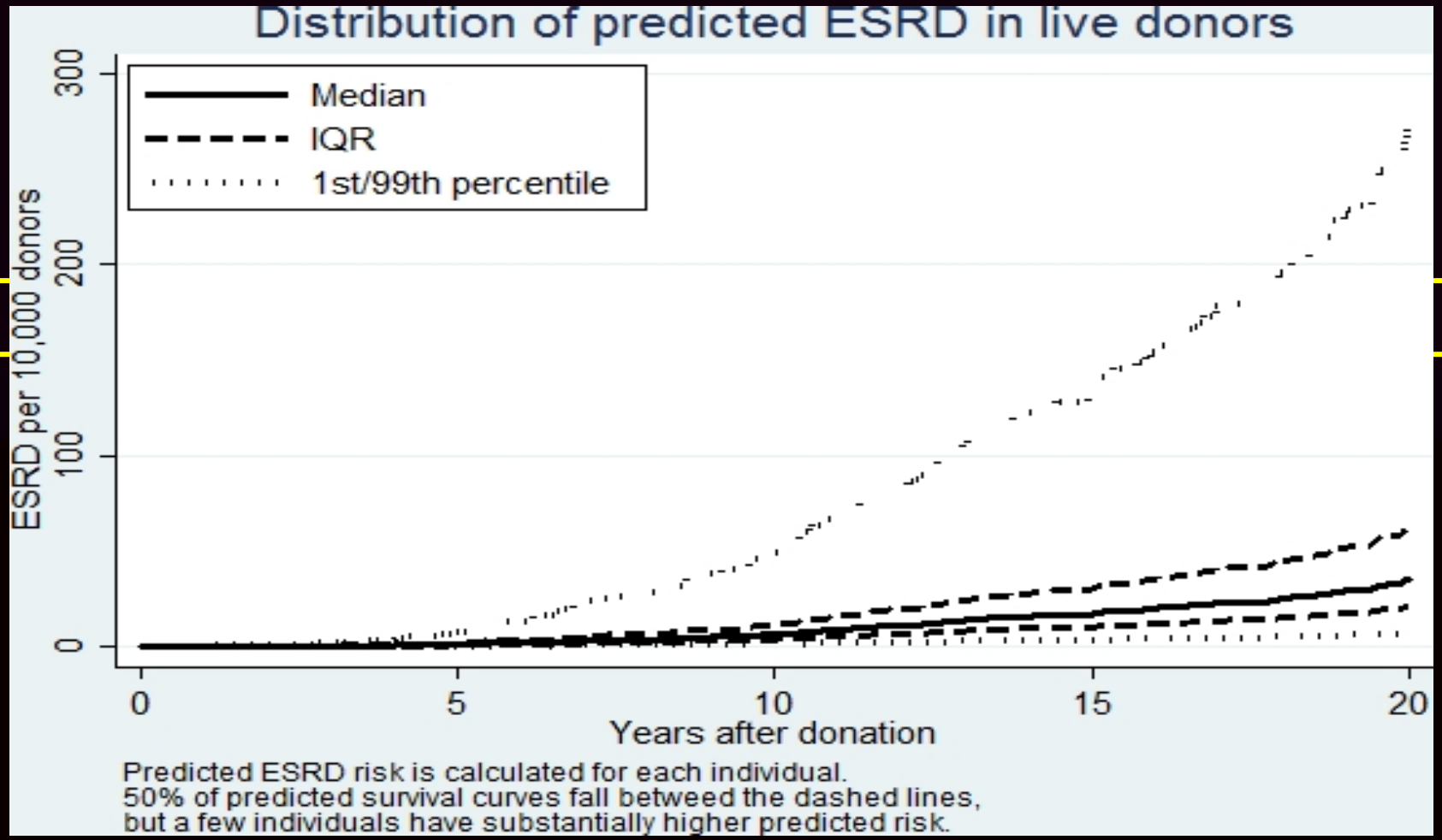


FIGURE 3. Cumulative incidence of comorbidity and ESRD after nephrectomy.

(*Transplantation* 2016;100: 1284–1293)

Risk Prediction of End-Stage Renal Disease in Living Kidney Donors.

A. Massie, E. Chow, D. Segev.ATC 2016 (Jhons Hopkins) .



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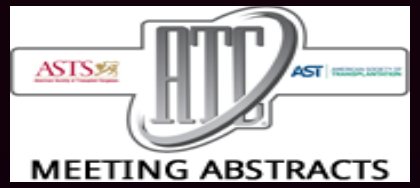


Risk factor	HR	P
Male Sex	1.56 **1.99** 2.56	< 0.001
AA race (at age 40)	2.27 **3.15** 4.37	< 0.001
Age per 10 y (non-AA)	1.23 **1.46** 1.72	< 0.001
Age per 10 y (AA)	0.63 **0.80** 1.02	0.07
Not related to recipient	0.63 **0.45** 0.98	0.04
BMI per 5 units	1.14 **1.52** 2.03	< 0.01

Long-term medical risks to the living kidney donor

Canada

Ngan N. Lam, Krista L. Lentine, Andrew S. Levey, Bertram L. Kasiske and Amit X. Garg

Table 1 | Studies that quantified long-term outcomes in living kidney donors compared with selected healthy controls

Study	*n*		Median donor follow-up time (years)	Donor age at donation (years)*	Incidence (%)		HR (95% CI)	*P* value
	Living kidney donors	Healthy matched nondonors			Donors	Nondonors		
End-stage renal disease								
Mjøen *et al.* (2014)[36]	1,901	32,621‡	15.1	46 (11)	0.47	0.067	11.38 (4.37–29.63)	<0.001
Muzaale *et al.* (2014)[37]	96,217	96,217	7.6	40 (11)	0.10	0.037	NR	<0.001

Lam, N. N. *et al. Nat. Rev. Nephrol.* **11**, 411–419 (2015);

Long-term risks for kidney donors

Oslo,Norway

Geir Mjøen[1], Stein Hallan[2,3], Anders Hartmann[1], Aksel Foss[1], Karsten Midtvedt[1], Ole Øyen[1], Anna Reisæter[1], Per Pfeffer[1], Trond Jenssen[1], Torbjørn Leivestad[4], Pål- Dag Line[1], Magnus Øvrehus[2], Dag Olav Dale[1], Hege Pihlstrøm[1], Ingar Holme[5], Friedo W. Dekker[6] and Hallvard Holdaas[1]

[1]Department of Transplant Medicine, Oslo University Hospital, Oslo, Norway; [2]Department of Nephrology, St Olav University Hospital,

Table 2a | Hazard ratio for death by any cause in kidney donors versus controls

	Unadjusted (n = 27,368–34,522)	Adjusted 1[a] (n = 2038/27,144)	Adjusted 2[b] (n = 2649/34,522)
Kidney donation	2.49 (2.13–2.91, P < 0.001)	1.48 (1.17–1.88, P = 0.001)	1.30 (1.11–1.52, P = 0.001)
Inclusion year	0.95 (0.93–0.97, P < 0.001)	0.95 (0.93–0.98, P < 0.001)	0.97 (0.95–0.98, P < 0.001)
Age, years	1.10 (1.10–1.11, P < 0.001)	1.10 (1.10–1.11, P < 0.001)	1.10 (1.10–1.11, P < 0.001)
Male	1.62 (1.49–1.73, P < 0.001)	1.44 (1.32–1.58, P < 0.001)	1.52 (1.41–1.65, P < 0.001)
Systolic BP	1.04 (1.03–1.04, P < 0.001)	1.00 (1.00–1.01, P = 0.45)	1.00 (1.00–1.01, P < 0.24)
Smoking	1.64 (1.50–1.79, P < 0.001)	1.97 (1.80–2.15, P < 0.001)	1.91 (1.74–2.10, P < 0.001)
BMI	1.12 (1.11–1.14, P < 0.001)	1.02 (1.00–1.04, P = 0.06)	1.01 (0.99–1.03, P = 0.21)

Abbreviations: BMI, body mass index; BP, blood pressure.
[a]Adjusted for age, gender, year of inclusion, systolic BP, smoking, and BMI.
[b]After multiple imputation.

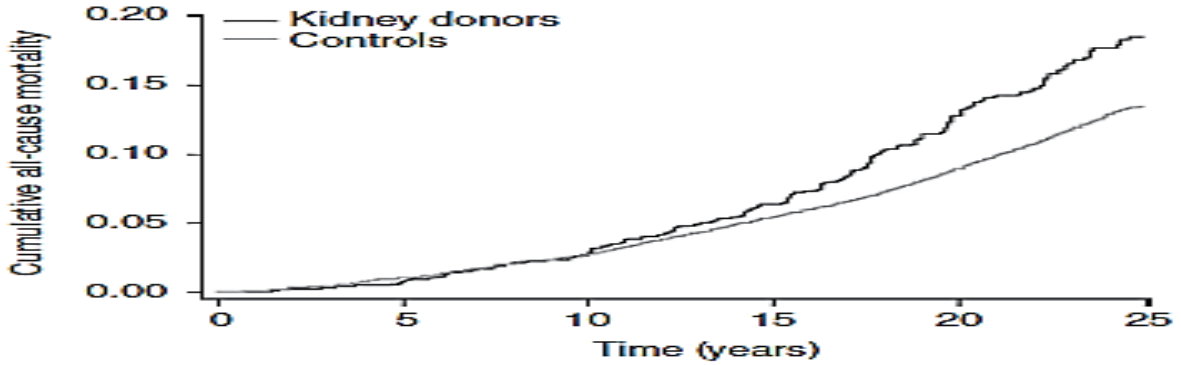


Figure 2 | Cumulative mortality risk in kidney donors and controls, adjusted for year of donation. Controls are matched to donors for age, sex, systolic blood pressure, body mass index, and smoking status.

Long-term risks for kidney donors

Geir Mjøen[1], Stein Hallan[2,3], Anders Hartmann[1], Aksel Foss[1], Karsten Midtvedt[1], Ole Øyen[1], Anna Reisæter[1], Per Pfeffer[1], Trond Jenssen[1], Torbjørn Leivestad[4], Pål- Dag Line[1], Magnus Øvrehus[2], Dag Olav Dale[1], Hege Pihlstrøm[1], Ingar Holme[5], Friedo W. Dekker[6] and Hallvard Holdaas[1]

[1]Department of Transplant Medicine, Oslo University Hospital, Oslo, Norway; [2]Department of Nephrology, St Olav University Hospital,

Table 2b | Hazard ratio for cardiovascular death in kidney donors versus controls

	Unadjusted (n = 27,368–34,522)	Adjusted 1[a] (n = 568/27,144)	Adjusted 2[b] (n = 756/34,522)
Kidney donation	3.18 (2.39-4.23, P<0.001)	1.52 (0.95-2.43, P=0.08)	1.40 (1.03-1.91, P=0.03)
Inclusion year	0.90 (0.87-0.94, P<0.001)	0.92 (0.87-0.98, P=0.005)	0.95 (0.92-0.98, P=0.004)
Age, years	1.13 (1.13-1.14, P<0.001)	1.13 (1.12-1.14, P<0.001)	1.13 (1.13-1.14, P<0.001)
Male	2.23 (1.92-2.60, P<0.001)	2.04 (1.71-2.44, P<0.001)	2.04 (1.75-2.38, P<0.001)
Systolic BP	1.05 (1.05-1.06, P<0.001)	1.01 (1.00-1.02, P=0.15)	1.01 (1.00-1.02, P=0.05)
Smoking	1.82 (1.55-2.14, P<0.001)	2.30 (1.94-2.72, P<0.001)	2.10 (1.75-2.51, P<0.001)
BMI	1.17 (1.14-1.21, P<0.001)	1.05 (1.01-1.08, P=0.006)	1.03 (1.00-1.07, P=0.03)

Table 2c | Cox regression analysis for risk of end-stage renal disease in kidney donors versus controls

	Unadjusted (n = 25,063–35,222)	Adjusted 1[a] (n = 31/34,522)	Adjusted 2[b] (n = 31/34,522)
Kidney donation	18.99 (8.63-41.76, P<0.001)	11.42 (4.43-29.40, P<0.001)	11.38 (4.37-29.63, P<0.001)
Inclusion year	0.76 (0.70-0.83, P<0.001)	0.91 (0.83-1.00, P=0.04)	0.90 (0.82-0.99, P=0.03)
Age, years	1.04 (1.01-1.07, P=0.003)	1.03 (1.00-1.06, P=0.04)	1.02 (0.99-1.05, P=0.13)
Male	0.94 (0.46-1.91, P=0.86)	1.04 (0.51-2.11, P=0.10)	0.90 (0.43-1.88, P=0.77)
Systolic BP	1.03 (1.00-1.07, P=0.14)	—	1.01 (1.00-1.06, P=0.03)
Smoking	1.09 (0.48-2.46, P=0.83)	—	1.19 (0.51-2.76, P=0.68)
BMI	1.19 (1.02-1.38, P=0.03)	—	1.13 (0.96-1.32, P=0.14)

Kidney International (2014) **86**, 162–167

Oslo

Original Investigation

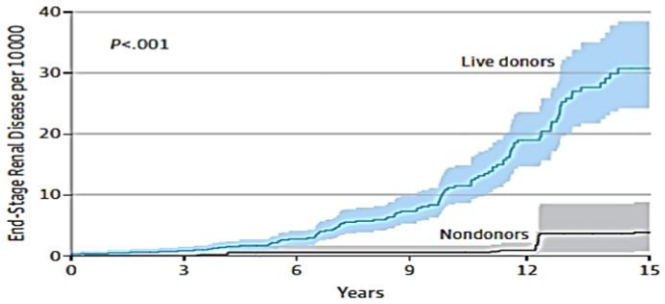
Risk of End-Stage Renal Disease Following Live Kidney Donation

Abimereki D. Muzaale, MD, MPH; Allan B. Massie, PhD; Mei-Cheng Wang, PhD; Robert A. Montgomery, MD, DPhil; Maureen A. McBride, PhD; Jennifer L. Wainright, PhD; Dorry L. Segev, MD, PhD

Johns Hopkins

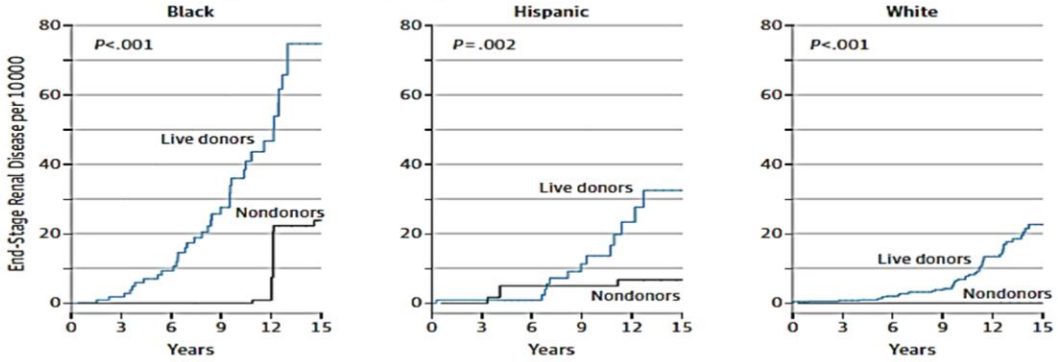
Figure 1. Cumulative Incidence of End-Stage Renal Disease in Live Kidney Donors and Matched Healthy Nondonors

A Cumulative incidence of end-stage renal disease



No. at risk						
Live donors	96217	77587	58979	39231	21573	8781
Nondonors	96217	95930	95422	94734	94199	50124

B Cumulative incidence of end-stage renal disease by race/ethnicity



No. at risk									
Live donors	12387	7910	2887	12061	6989	2452	71769	44080	16234
Nondonors	12387	12256	12093	12061	11957	11818	71769	71209	70288

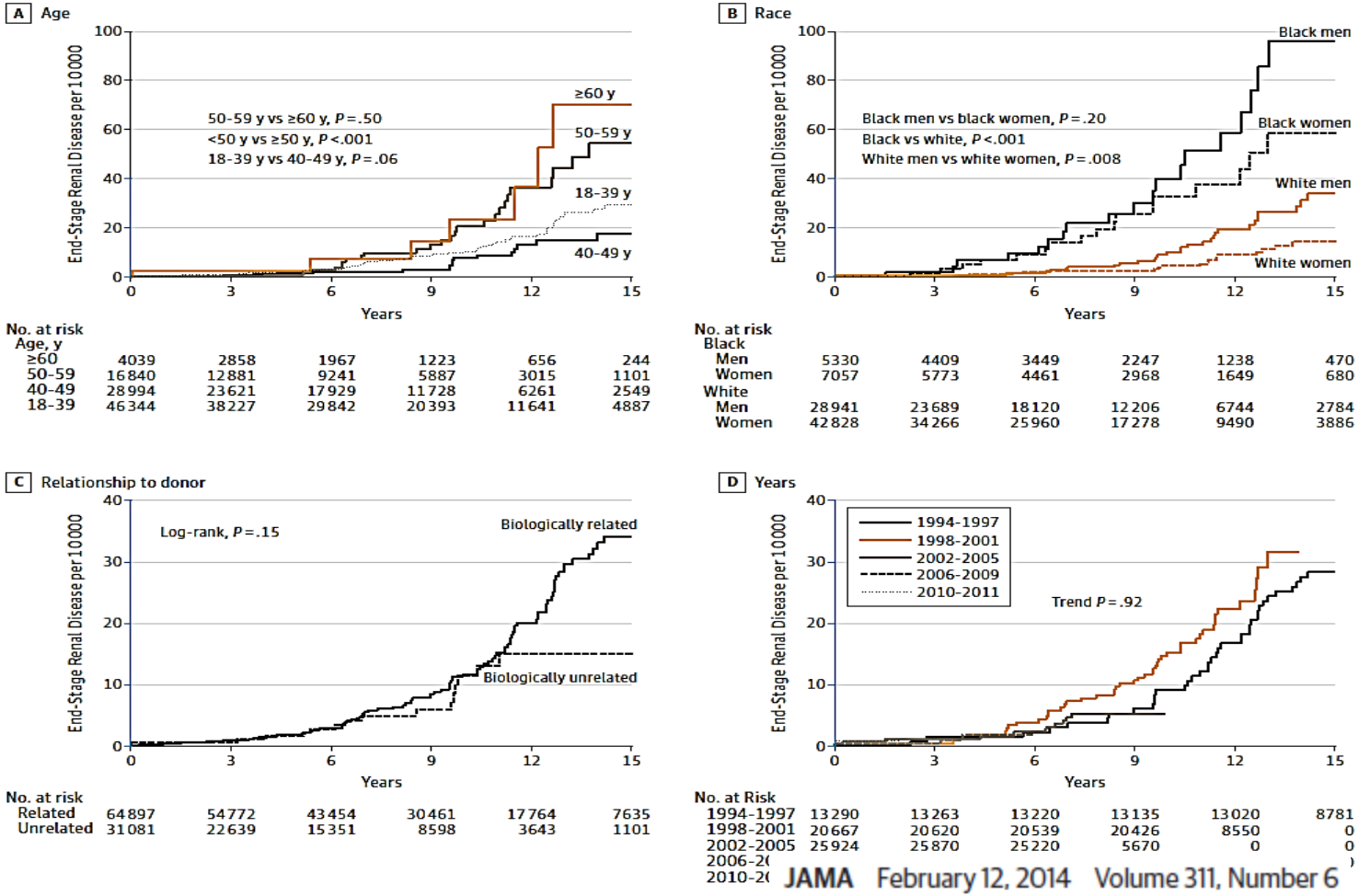
A. The shaded areas indicate 95% confidence intervals obtained by bootstrapping. Matched healthy nondonors were identified among participants in the third National Health and Nutrition Examination Survey and were drawn with replacement in light of a larger population of donors compared with healthy nondonors by bootstrapping (see the Methods section).

Original Investigation

Risk of End-Stage Renal Disease Following Live Kidney Donation

Abimereki D. Muzaale, MD, MPH; Allan B. Massie, PhD; Mei-Cheng Wang, PhD; Robert A. Montgomery, MD, DPhil; Maureen A. McBride, PhD; Jennifer L. Wainright, PhD; Dorry L. Segev, MD, PhD

Figure 2. Cumulative Incidence of End-Stage Renal Disease in Live Kidney Donors



Living Kidney Donor Evaluation

Guillaume Claisse, MD,[1] François Gaillard, MD, PhD,[2] and Christophe Mariat, MD, PhD[1]

TABLE 1.

Comparison of the main guidelines for the main predonation characteristics of living kidney donors

Guidelines	Donor age	Hypertension	Body mass index	Diabetes	Proteinuria
BTS (2018)[12]	Not limited	ABPM/home monitoring if high normal or variable <140/90 mm Hg Controlled BP (<140/90 mm Hg) under 2 treatments No organ damages	<30 kg/m^2 30–35 kg/m^2: specific evaluation CI: >35 kg/m^2	No absolute CI Lifetime cardiovascular and ESRD risk evaluation	ACR < 3 mg/mmol Relative CI: ACR 3–30 mg/mmol Absolute CI: ACR >30 mg/mmol or PCR >50 mg/mmol
KDIGO (2017)[13]	Not mentioned	ABPM/repeated measures if high normal or variable <140/90 mm Hg Controlled BP (<140/90 mm Hg) under 2 treatments No organ damages	<30 kg/m^2 >30 kg/m^2: specific evaluation	No absolute CI Specific evaluation	Albuminuria <30 mg/d Albuminuria 30–100 mg/d: specific evaluation Absolute CI: Albuminuria >100 mg/d
Canadian KPD Protocol (2015)[14]	Not mentioned	ABPM/repeated measures if high normal or variable <140/90 mm Hg Controlled BP (<135/85 mm Hg) under 1 treatment No organ damages	<30 kg/m^2 30–35 kg/m^2 with no other cardiovascular risk factors CI: >35 kg/m^2	Considered as CI	Proteinuria <150 mg/d or ACR <3 mg/mmol Proteinuria 150–300 mg/d: specific evaluation Absolute CI: Proteinuria >300 mg/d ACR >3 mg/mmol
ERBP (2013)[15]	Not limited	ABPM/repeated measures if high normal or variable <140/90 mm Hg Controlled BP (ABPM < 135/85 mm Hg) under 2 treatments No organ damages	CI: >35 kg/m^2	Considered as CI	Absolute CI: Proteinuria > 300 mg/d or ACR > 30 mg/mmol Albuminuria 30-300 mg/d: high risk for donation

ABPM, ambulatory blood pressure monitoring; ACR, albumin-to-creatinine ratio; BP, blood pressure; BTS, British Society Transplantation; CI, contraindication; CT, computeri
disease; KDIGO, Kidney Disease: Improving Global Outcomes; KPD, kidney paired donation protocol; TBMD, thin basal membrane disease.

Living Kidney Donor Evaluation

Guillaume Claisse, MD,[1] François Gaillard, MD, PhD,[2] and Christophe Mariat, MD, PhD[1]

	Hematuria	Kidney stones	Malignancy	Surgery approach
	Exclusion of urologic disease (CT, cystoscopy) and glomerulopathy (kidney biopsy) TBMD not consider as CI	Specific evaluation according to the risk of recurrence Use affected kidney	Screening according to clinical practice guidelines Absolute CI: Active Cancer Low-graded treated tumor: specific evaluation	Laparoscopic (full or hand-assisted)
	Exclusion of urologic disease (CT, cystoscopy) and glomerulopathy (kidney biopsy) TBMD not consider as CI	Specific evaluation according to the risk of recurrence	Screening according to clinical practice guidelines Absolute CI: Active cancer Low-graded treated t umor: specific evaluation	Laparoscopic (full or hand-assisted)
	Exclusion of urologic disease (CT, cystoscopy) and glomerulopathy (kidney biopsy) TBMD not consider as CI	CI: <40 y with past or current stones Use affected kidney	Screening according to clinical practice guidelines Absolute CI: Active cancer Low-graded treated tumor: specific evaluation	Not mentioned
	Exclusion of glomerulopathy TBMD not consider as CI	Not mentioned	Not mentioned	Laparoscopic or minimally invasive

erized tomography; ERBP, European renal best practice; ERSD, end-stage renal disease; ESRD, end-stage renal

ESRD risk evaluation and prediction

- Before 2014, there was no evidence of an increased risk of ESRD for living kidney donors compared to the general population.

- However, compared to a group of healthy non-donors, living kidney donors have recently been suggested to be at increased risk of ESRD.
- Although the absolute ESRD risk of donors remains lower than in the general population, there appears to be a risk of ESRD attributable to donation.
- The conventional screening process considered all the variables used to predict ESRD risk separately. By contrast, the calculator consolidates all of the conventional ESRD risk factors into a single risk estimate.

Claisse G et aL; Transplantation ■ December 2020

Review

Living Kidney Donor Evaluation

Guillaume Claisse, MD,[1] François Gaillard, MD, PhD,[2] and Christophe Mariat, MD, PhD[1]

THE 2017 KDIGO GUIDELINES: INTRODUCTION OF AN INTEGRATIVE RISK-BASED APPROACH

A New Paradigm for Living Kidney Donor Selection

TABLE 2.

Comparison of the 3 main risk calculators

Authors	Population	Predicted outcome	Time	Variables
Grams et al[33]	Black and White (Selected) Nondonors International, multicentric	ESRD in the absence of donation (post donation not yet available)	15 y and lifetime	Predonation variables: Age, gender, race, eGFR, blood pressure, hypertension medication, BMI, diabetes, smoking, UACR
Ibrahim et al[51]	White Donors United States, monocentric	ESRD, eGFR (ml/min) and Proteinuria after donation	5 y intervals Up to 40 y	Predonation variables: Age, gender, smoking, eGFR, glucose, BMI, blood pressure, recipient relation, diabetes in recipient
Massie et al[50]	Black and White—Donors United States, multicentric	ESRD after donation	20 y	Predonation variables: Sex, age, race, BMI, recipient relation

BMI, body mass index; eGFR, estimated glomerular filtration rate; ESRD, end-stage renal disease; ESRD, end-stade renal disease; UACR, urine albumin-to-creatinine ratio.

ESRD risk evaluation and prediction

- Use of these tools to predict ESRD is now recommended by the KDIGO guidelines as part of a general strategy in which each center defines an acceptability risk threshold.

- The 2018 BTS guidelines do not recommend the use of ESRD risk calculators, mainly because it is not known whether the estimates apply to the UK population (Andrews & Burnapp,2018).

- Part of the difficulty with implementing risk calculators in routine practice stems from the definition of an “acceptable risk threshold.” There is a lack of evidence for selection of an acceptable risk threshold. The definition of acceptable risk thresholds can differ significantly different between centers.

Transplantation ■ December 2020 ■ Volume 104 ■ Number 12

PREGNANCY COMPLICATIONS FOLLOWING DONATION

1. High rates of hypertensive complications during pregnancy.
2. Pre-eclampsia occurred more frequently after donation (5.7%) than before donation (2.6%)
3. Fetal loss (19.2% v 11.3%), gestational diabetes (2.7% v 0.7%), and delivery before 36 weeks gestation (post-donation vs predonation)

Close monitoring is advisable in donors during pregnancy, with monitoring of blood pressure, creatinine and fetal well-being.

kidney donors can be offered Aspirin 75 mg daily for pre-eclampsia prophylaxis.
The risk of future cardiovascular disease in kidney donors who develop preeclampsia is unknown.

BTS/RA Living Donor Kidney Transplantation Guidelines 2018

End-stage Renal Disease Among Living-Kidney Donors: Single-center Experience

Ehab W. Wafa,[1] Ayman F. Refaie,[1] Tarek M. Abbas,[1] Mohamed A. Fouda,[1] Hussein A. Sheashaa,[1] Amani Mostafa,[2] Mohamed I. Abo El Ghar,[3] Mohamed A. Ghoneim[4]

Results:

- ***Of 2000 living donors, 8 developed end stage*** **renal disease; 6 were men (mean age,30.87 ± 5.84 years. Renal failure occurred 5 to 27years after donation. Renal transplant was done in 1 donor.**

- **Causes of end-stage renal disease were hypertension in 7 patients , diabetic nephropathy in 3 patients. Other possible causes included toxic nephropathy, chronic pyelonephritis, and preeclampsia .**

Experimental and Clinical Transplantation (2011) 1: 14-19

End-stage Renal Disease Among Living-Kidney Donors: Single-center Experience

Ehab W. Wafa,[1] Ayman F. Refaie,[1] Tarek M. Abbas,[1] Mohamed A. Fouda,[1] Hussein A. Sheashaa,[1] Amani Mostafa,[2] Mohamed I. Abo El Ghar,[3] Mohamed A. Ghoneim[4]

Table 3. Postdonation comorbidities.

Comorbidity	Number of cases	%
Hypertension	7	87.5
Diabetes mellitus	3	37.5
Hyperuricemia and gout	3	37.5
Obesity (BMI > 30)	3	37.5
Proteinuria	6	75
Cardiovascular (IHD)	5	62.5
Toxemia of pregnancy	1	12.5
Infections:		
Viral:		
HBV	1	12.5
HCV	3	37.5
Depression	1	12.5

Abbreviations: HBV, hepatitis B virus; HCV, hepatitis C virus; IHD, ischemic heart disease

Finally, we conclude that live-kidney donation is a safe procedure, with a minimal complication rate in long-term follow-up. Strict eligibility criteria, close follow-up, and use of kidney biopsy for donors with declining renal function after nephrectomy are mandatory for better understanding of the natural history of their illnesses. Furthermore, consideration also should be given to establish a national, as well as an international, database for living-kidney donors for better evaluation for the policy of living donation.

Experimental and Clinical Transplantation (2011) 1: 14-19

Summary and Conclusion

Living kidney donation remains a safe and acceptable surgical procedure.

Recent studies have provided evidence to estimate ESRD risk in donors & have demonstrated a numerically small increase in ESRD risk, and identified those groups at particular risk (black donors, young donors, donors genetically related to patients with ESRD, donors with increased BMI).

Importantly, the absolute risk of ESRD in donors remains low when compared to the general population. This data must inform donor assessment and consent, and emphasizes the importance of Long-term donor follow-up.

Recommendations

- Every effort should be done to select a suitable donor to ensure good functional outcome for recipients with no or minimal morbidity for the potential donors.
- We have to push forward deceased donation program to go in parallel to living donation.


Thank You

Mansoura Experience

Donor Evaluation
Mansoura Experience

0022-5347/04/1714-1424/0
THE JOURNAL OF UROLOGY®

Vol. 171, 1424–1427, April 2004
Printed in U.S.A.
DOI: 10.1097/01.ju.0000116431.65651.58

EVALUATION AND SELECTION OF POTENTIAL LIVE KIDNEY DONORS

EHAB W. WAFA, AHMED F. DONIA, BEDEIR ALI-EL-DEIN, AMGAD E. EL AGROUDY, AYMAN RIFAIE, AMANI MOUSTAFA AND MOHAMED A. GHONEIM*

From the Urology and Nephrology Center, Mansoura, Egypt

Conclusions: Although kidneys from living donors provide the best functional outcome, 50% of potential candidates must be excluded.

Objectives

- Confirmation of donor safety is the cornerstone for living donation. Living donation with short waiting time offer the best results.
- A thorough evaluation of potential donors is necessary to provide the best functional outcome for recipients and ensure no or minimal morbidity for donors.

Potential Donors: Relationship to Recipients

Relationship	Accepted donors No	Excluded donors No
Related	678	728
Emotionally related (spouse)	58	82
Unrelated	111	4
Total	847	814

Causes of donor exclusion

Causes	No. of cases	(%) of total excluded cases	(%) of total screened cases
Medical	280	34.39	16.86
Nephrological	208	25.55	12.52
Urological	95	11.67	5.72
Immunologic	132	16.22	7.95
Ethical	99	12.16	5.96
Total	814		

- Total screened cases: Total number of evaluated donors (accepted and excluded; No=1661).

Medical causes for exclusion

Causes	No. of cases	(%) of total excluded cases	(%) of total screened cases
1- Microbiological			
-Viral			
HBV (AB +ve,)	14	1.72	0.84
HCV (AB +ve, PCR +ve)	97	11.92	5.84
Liver cirrhosis	29	1.75	1.75
Hyperbilirubinemia	2	0.25	0.12
CMV (AB+ve, PCR+ ve)	1	0.12	0.06
-Pulmonary tuberculosis	3	0.37	0.18
2- Cardiopulmonary			
Hypertension	50	6.14	3.01
Ischemic heart disease	7	0.86	0.42
Arrhythmias	2	0.25	0.12
Aortic aneurysm	1	0.12	0.06
Aortic atherosclerosis	1	0.12	0.06
Pericardial effusion	2	0.25	0.12
Mitral valve disease	2	0.25	0.12
Bronchial asthma	2	0.25	0.12
Situs inversus totalis	1	0.12	0.06

Medical causes for exclusion

Causes	No. of cases	(%) of total excluded cases	(%) of total screened cases
3- Hormonal and metabolic disorders			
Diabetes mellitus	39	4.79	2.35
Gout	3	0.37	0.18
Morbid obesity	7	0.86	0.42
4- Miscellaneous disorders			
Severe anemia	7	0./86	0.42
Bronchogenic cancinoma	1	0.12	0.06
Pancreatic cystadenoma	1	0.12	0.06
Systematic lupus erthematosis	3	0.37	0.18
Familial mediterranean fever	2	0.25	0.12
Breast cancer	1	0.12	0.06
Epilepsy	2	0.25	0.12
TOTAL	280		

+ve , positive; PCR, polymerase chain reaction; AB, antibody.

Nephrological causes for exclusion

Causes	No. of cases	(%) of total excluded cases	(%) of total screened cases
1- Hereditary renal disease:			
- Polycystic kidney disease	27	3.32	1.63
- Hereditary nephrits	16	1.97	0.96
2- Asymptomatic urinary abnormalities:			
Hematuria	102	12.53	6.14
proteinurea	42	5.16	2.53
3- Increased parenchymal echogenicity (grade 1)	21	2.57	1.26
TOTAL	208		

Urological causes for exclusion

Causes	No. of cases	(%) of total excluded cases	(%) of total screened cases
1- Congenital anomalies			
Horse-shoe kidney	6	0.74	0.36
Malortated kidney	2	0.25	0.12
Ectopic kidney	3	0.37	0.18
Renal duplex (complete)	1	0.12	0.06
Hypoplastic kidney	10	1.23	0.60
2- Renal stones	35	4.30	2.11
3- Infection			
Nonspecific	19	2.33	1.14
TB	6	0.74	0.36
4- Obstructive uropathy	2	0.25	0.12
5- Renal cysts			
Benign	7	0.86	0.42
Malignant	1	0.12	0.06
6- Previous renal surgery	3	0.37	0.18
Total	95		

Immunological causes for exclusion

Immunological causes	No. of cases	(%) of total excluded cases	(%) of total screened cases
1- HLA-A, B mismatch (0/4)	20	2.46	1.20
2- HLA-DR mismatch (0/2)	37	4.55	2.23
3- Positive lymphocyte cross match	75	9.21	4.52
TOTAL	132		

Ethical causes for exclusion

Abnormality	No. of cases	(%) of total excluded cases	(%) of total screened cases
Young age of donors(<21)	9	1.11	0.54
Old- aged donors (>60)	10	1.23	0.60
Mental retardation	2	0.25	0.12
Unmotivated donors(fear of surgery)	60	7.37	3.61
Wide age discrepancy	14	1.72	0.84
:psychological disorders			
Depression	3	0.37	0.18
Compulsory obsession	1	0.12	0.06

Conclusions

- In our experience, one-half of ABO compatible potential living donors were judged to be unsuitable.
- The leading causes included *asymptomatic microscopic hematuria* in 102 cases (12.5%), *positive serology for HCV* in 97 cases(11.9%), *positive lymphocytic cross matching* 75 cases (9.2%), *hypertension* in 50 cases (6.1%), *diabetes mellitus* in 39 cases (4.8%) and *finally lack of motivation* in 60 donors (7.4%) .

Arab Journal of Urology
(Official Journal of the Arab Association of Urology)
www.sciencedirect.com

RENAL TRANSPLANTATION

ORIGINAL ARTICLE

Hyperechogenic renal parenchyma in potential live related kidney donors: Does it justify exclusion?

Mohamed A. Fouda *, Ahmed A. Shokeir, Ehab W. Wafa, Ayman F. Refaie, Tarek El Diasty, Mona Abdelrahim, Mohamed A. Sobh, Mohamed A. Ghoneim

In conclusion, grade 1 echogenicity might be of value in donor selection, as it can be a sign of unrecognized kidney disease. When these donors are the only ones available for donation, renal biopsy must be considered. Follow-up of these donors, especially those with abnormal histopathology, is crucial in verifying and confirming the importance of grade 1 echogenicity in donor selection. The presence of positive radiological and histopathological data in a given donor should be considered with extreme caution and might even contraindicate donation, irrespective of minor lesions or the extent of motivation, as this might compromise graft function in the future; however, there should be a trial to obtain grafts from these donors and record their development. A protocol for future study is now being devised.

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Table 2 Histopathological abnormalities in the study and control groups.

Subject	Glomerular	Tubular atrophy	Interstitial fibrosis	IF
1	Sclerosis (1)	N	N	–
2	MT (1)	N	N	IgA + + +
3	N	(1)	N	–
4	MT (1)	N	N	–ve
5	N	N	(1)	IgM +ve
6	N	N	N	IgM +ve
7	N	N	N	IgM +ve
8 (control)	MT (1)	N	N	Mild focal mesangial IgM deposits

(n), score; MT, mesangial thickening; N, normal findings.

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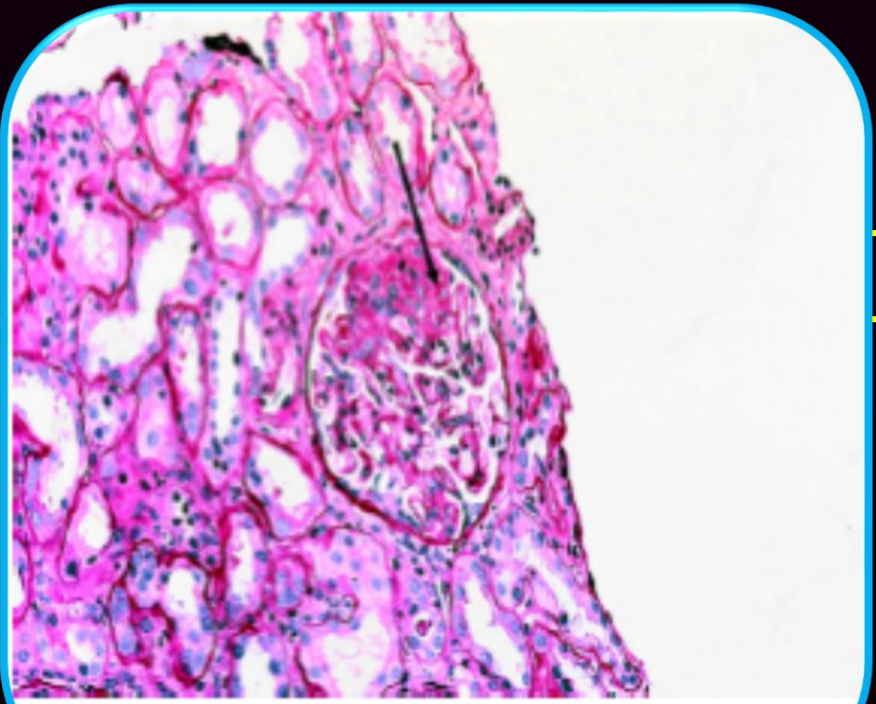

ure 1 Segmental patch of sclerosis, periodic acid-Schiff ×

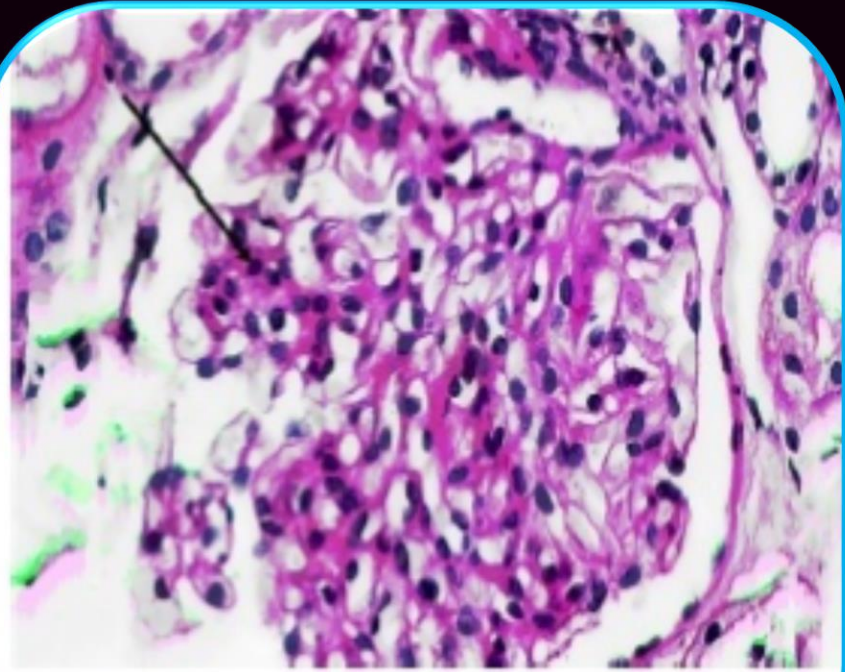

Figure 2 Mild segmental mesangial thickening, periodic a
iff ×400.

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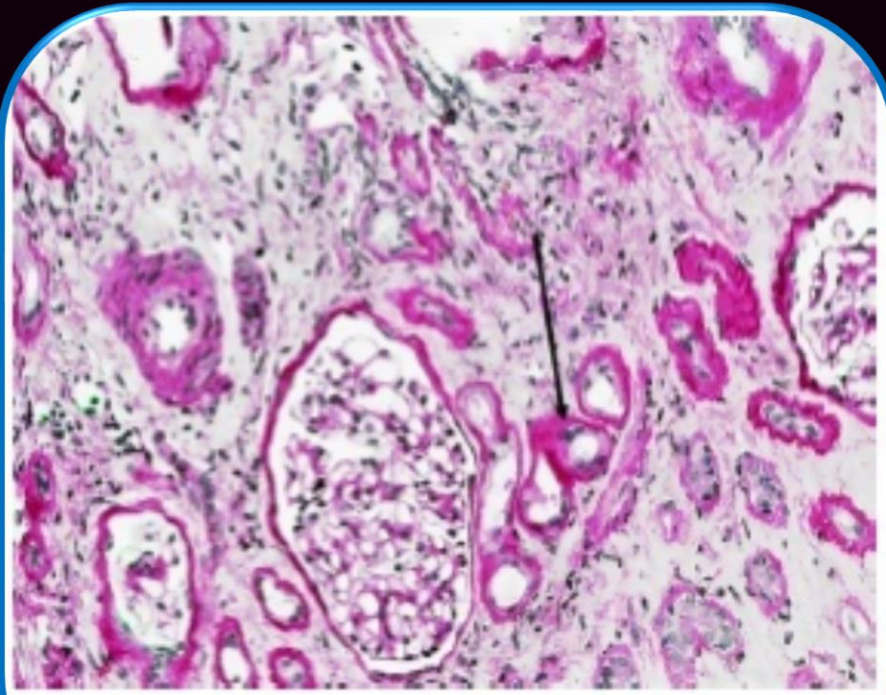
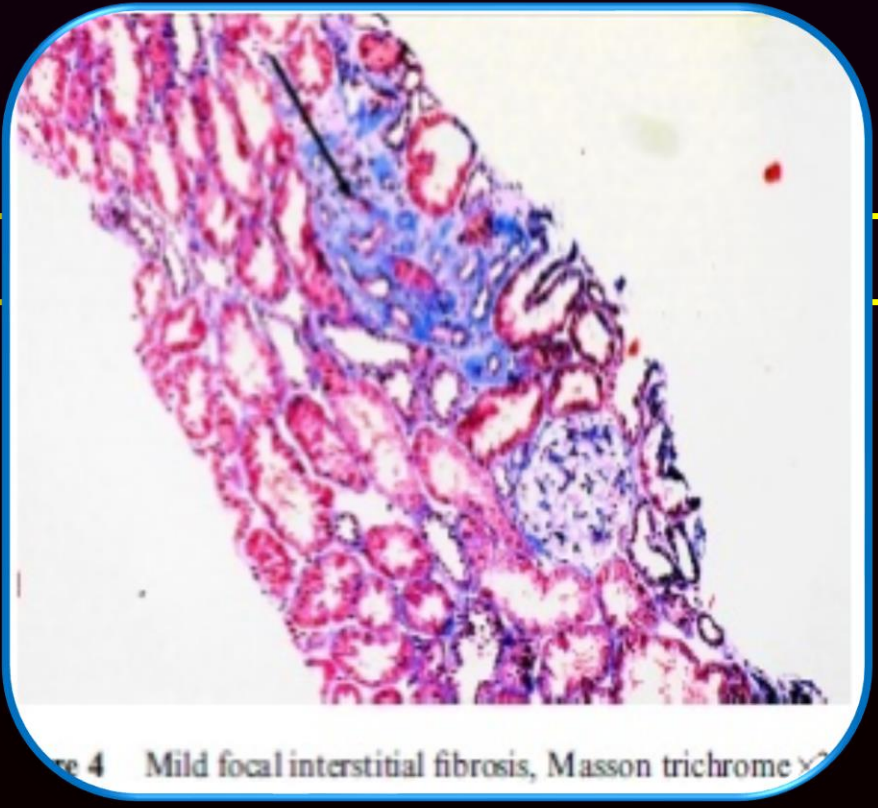


rure 3 Mild focal tubular atrophy, periodic acid-Schiff ×20



re 4 Mild focal interstitial fibrosis, Masson trichrome ×

Research Article

Long Term Prospective Assessment of Living Kidney Donors: Single Center Experience

ISRN Nephrology
Volume 2014, Article ID 502414, 5 pages

Ayman Maher Nagib,[1] Ayman Fathi Refaie,[1] Yasser Abdelmoniem Hendy,[2] Magdy Abass Mohmed Elfawal,[3] Ahmed Abdelrahman Shokeir,[4] Mohamed Adel Bakr,[1] Ahmed Hassan Neamattala,[1] Ahmed Farouk Hamdy,[1] Khaled Mohamed Mahmoud,[1] Amani Mostafa Ismail,[5] and Mohamed Ahmed Ghoneim[4]

Table 1: Clinical data at different intervals.

Variables	Basal	At 3 months	At 6 months	At 12 months	At 24 months	*P* value
BMI (Kg/m^2)	29.72 ± 5.37	30.13 ± 5.72	30.44 ± 5.82	30.85 ± 5.82	30.99 ± 6.13	0.004
Blood pressure (mmHg)	120.8 ± 6.49	124.1 ± 11.7	121.9 ± 12.5	120.9 ± 11.6	118.5 ± 15.9	0.22
Systolic Diastolic	79.2 ± 4.9	80.5 ± 7.1	79.2 ± 8.27	79.1 ± 8.5	77.1 ± 9.6	0.117

Table 2: Changes of the renal function tests in the first 24 months after donation.

Variables	Basal	At 3 months	At 6 months	At 12 months	At 24 months	*P* value
Serum creatinine (mg/dL)	0.75 ± 0.14	1.01 ± 0.22	0.99 ± 0.21	0.98 ± 0.20	0.94 ± 0.20	<0.001
Calculated creatinine clearance (mL/min)	148.8 ± 35.7	94.68 ± 26.6	95.49 ± 24.6	96.69 ± 20.2	101.6 ± 26.2	<0.001
Cockcroft and Gault (mL/min)	132.8 ± 36.2	101.5 ± 25.6	105.2 ± 27.3	106.7 ± 25.8	111.5 ± 29.6	<0.001
MDRD (mL/min)	107.2 ± 19.3	79.4 ± 20.5	80.3 ± 16.6	81.5 ± 17.7	84.4 ± 17.5	<0.001
24 hours urine protein (gm/day)	0.09 ± 0.03	0.19 ± 0.08	0.16 ± 0.09	0.18 ± 0.05	0.17 ± 0.02	<0.001
Protein creatinine ratio	0.09 ± 0.04	0.16 ± 0.04	0.14 ± 0.03	0.15 ± 0.03	0.17 ± 0.09	<0.001

Research Article

Long Term Prospective Assessment of Living Kidney Donors: Single Center Experience

ISRN Nephrology
Volume 2014, Article ID 502414, 5 pages

TABLE 3: Changes of the biochemical values in the first 24 months after donation.

Variable	Basal	At 3 months	At 6 months	At 12 months	At 24 months	*P* value
FBS (mg/dL)	90.01 ± 9.73	91.09 ± 11.35	88.84 ± 14.72	84.05 ± 15.43	79.49 ± 22.9	0.41
PPBS (mg/dL)	105.46 ± 14.6	95.33 ± 10.6	102.3 ± 16.4	98 ± 9.1	103.7 ± 20.1	0.52
Total cholesterol (mg/dL)	179.3 ± 33.57	182.8 ± 31.6	185.6 ± 34.34	189.9 ± 40.34	192.4 ± 39.4	0.018
HDL (mg/dL)	46.62 ± 9.99	46.59 ± 10.81	44.95 ± 10.54	43.53 ± 9.95	45.47 ± 10.93	0.003
LDL (mg/dL)	116.89 ± 43.4	111.58 ± 27.64	115.93 ± 28.82	118.7 ± 31.38	119.93 ± 29.61	0.052
Triglycerides (mg/dL)	96.99 ± 50.23	115.8 ± 64.2	128.7 ± 85.5	121.02 ± 56.8	121.02 ± 56.8	0.003
Uric acid	4.5 ± 1.03	5.2 ± 1.1	5.27 ± 1.19	5.18 ± 1.16	5.37 ± 1.14	<0.001

5. Conclusion

Obese potential live kidney donors should be advised to maintained ideal body weight in order to avoid proteinuria, hypertension, and diabetes mellitus. Proteinuria increases with marginal significance but appears to be of no clinical consequence. Despite the reduction in GFR in the early post donation period, afterwards it increased to normal values.

Nephrourol Mon. 2016 May; 8(3):e34770. doi: 10.5812/numonthly.34770.
Published online 2016 April 2. Research Article

Impact of Donor Source on the Outcome of Live Donor Kidney Transplantation: A Single Center Experience

Yasser Elsayed Matter,[1,*] Ayman M Nagib,[1] Omar E Lotfy,[2] Ahmed Maher Alsayed,[2] Ahmed F Donia,[1] Ayman F Refaie,[1] Ahmed I Akl,[1] Mohamed Hamed Abbas,[1] Mohammed M Abuelmagd,[1] Hussein A Shaeashaa,[1] and Ahmed A Shokeir[3]

Table 6. Number and Type of Rejection Episodes[a]

Variable	Related Group (n = 2,075)	Unrelated Group (n = 410)	P Value
Number of acute rejections			
No rejection	960 (46.3)	167 (40.7)	0.03
One episode	614 (29.6)	129 (31.5)	0.447
≥ Two episodes	501 (24.1)	114 (27.8)	0.116
Type of rejection			
Acute cellular	728 (35.1)	156 (38.1)	0.25
Acute vascular	71 (3.41)	26 (6.3)	0.005
Chronic rejection	490 (23.6)	80 (19.5)	0.07
Rejection free	786 (37.9)	148 (36.1)	0.496

[a]Values are expressed as No. (%).

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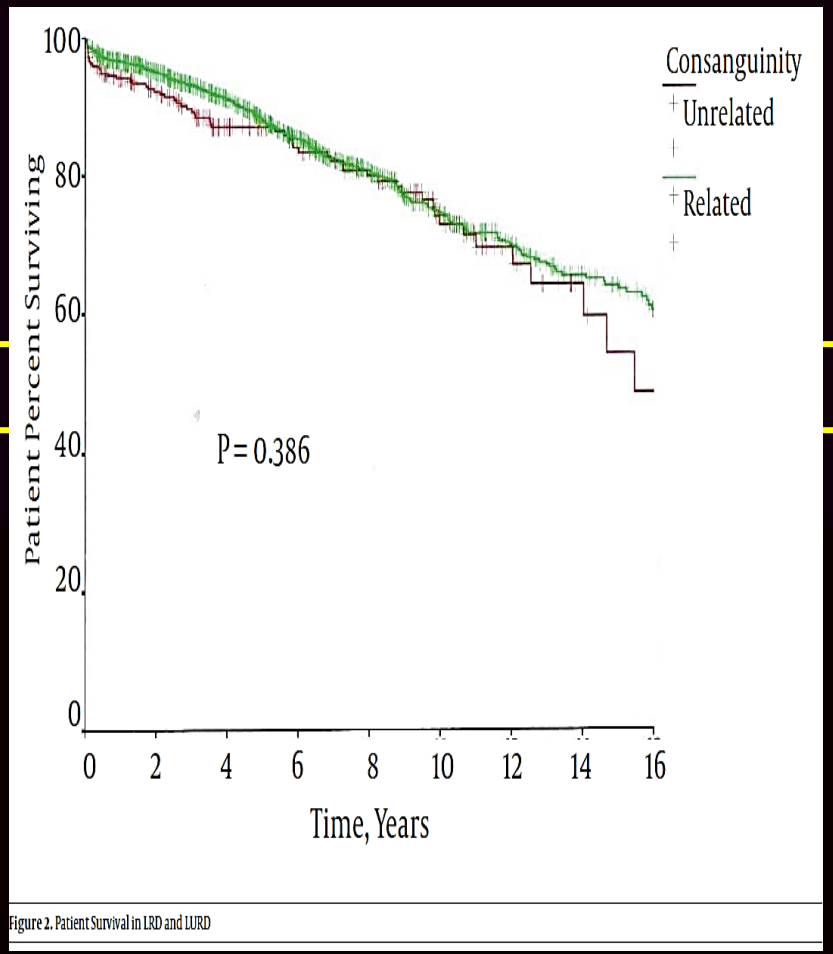

Figure 2. Patient Survival in LRD and LURD

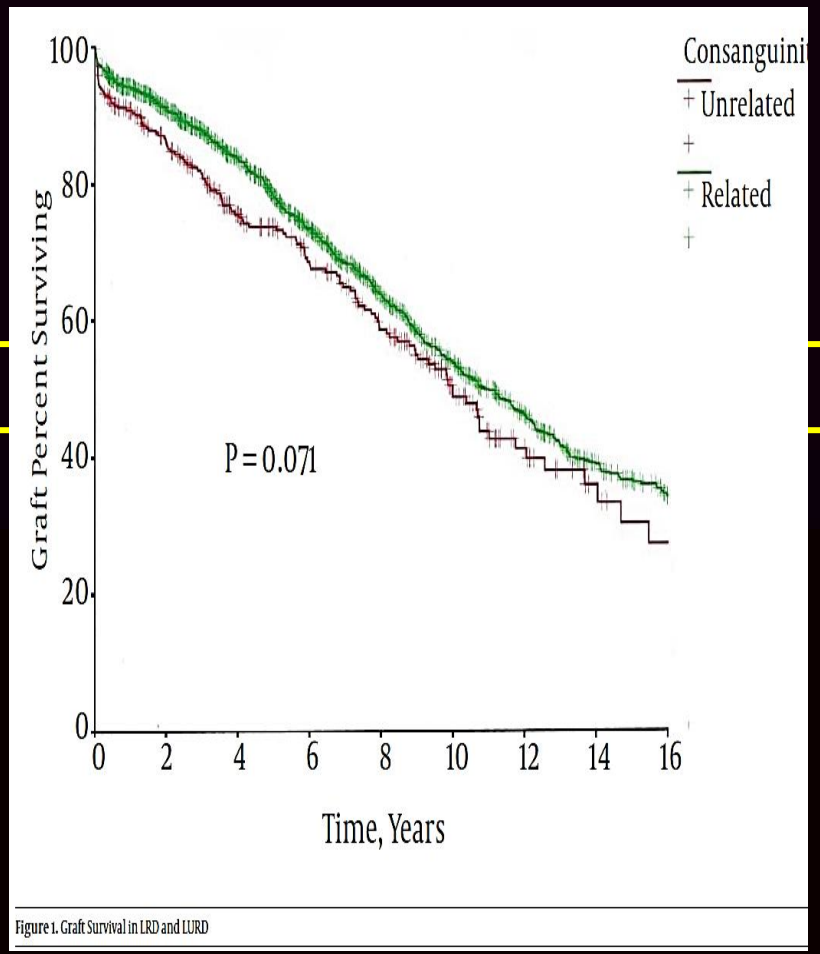

Figure 1. Graft Survival in LRD and LURD

Nephrourol Mon. 2016; 8(3):e34770.

Study of asymptomatic microscopic hematuria in potential living related kidney donors.

Sobh MA, Moustafa FE, el-Din Saleh MA, Tawfik A, Ghoneim MA.

- Thirty donors were subjected to kidney biopsies which were examined by light microscopy, direct and indirect immuno-fluorescent microscopy, and electron microscopy.
- Hereditary nephritis (with or without sensorineural deafness) was found to be the most common cause of asymptomatic microscopic hematuria (25/30), followed by isolated C3 deposits disease (3/30), IgA nephropathy (1/30) and IgM nephropathy (1/30).
- Since these disease conditions are of a progressive nature, we have concluded that relatives of uremic patients with asymptomatic microscopic hematuria should not be considered for kidney donation even if they are strongly motivated

Histopathological findings in Basal pre-transplantation biopsy

Mona Abdelrahim, Ahmed Shokeir, Hussein sheashaa, Ehab Wafa, MA Dahab, , MA. Ghoneim

Mansoura Urology and Nephrology Center, mansoura University, Egypt.

Segmental sclerosis was detected in 9.6%,

Mesangial thickening in 29.8% ,

Global sclerosis in 29.8% and

Tubular atrophy in 7.4%.

No cases have shown interstitial fibrosis.

Interstitial inflammatory infiltrate was noticed in 2.1% .

Interstitial edema in 5.3%. Acute tubular injury was diagnosed in 13.8%. Two cases (2.1%) were insufficient for arterial sampling, Focal and diffuse nodular hyaline changes were seen in 7.4% and 1.1% respectively ,while intimal fibrosis was detected in 16%.

Protocol renal allograft biopsy is a potentially valuable diagnostic and research tool. The clinical useful information they provide justifies the importance as a reference tool in future pathology.

Long-term follow-up of living kidney donors: a longitudinal study

Amgad E. El-Agroudy, Alaa A. Sabry, Ehab W. Wafa, Ahmed H. Neamatalla, Amani M. Ismail, Tarek Mohsen, Abd Allah Khalil, Ahmed A. Shokeir and Mohamed A. Ghoneim

Urology & Nephrology Center, Mansoura University, Mansoura, Egypt

TABLE 2 The morbidities after donation

Variable	n (%)
Hypertension	75 (22.1)
GFR (CrCl), mL/min	
>90	297 (87.6)
60–90	39 (11.5)
60	3 (0.9)
Proteinuria, mg/24 h	
>150	6 (1.8)
>300	5 (1.5)
Diabetes mellitus	23 (6.8)
Overweight	112 (33)
Obese	62 (18.3)
Cardiovascular	11 (3.2)
Stones	5 (6.4)
Psychiatric	3 (0.8)

2007 BJU INTERNATIONAL | 100, 1351–1355

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TABLE 4 Variables according to the interval after donation and age at donation

	Duration, years (at follow-up)				Age, years (at donation)			
Variables	5–14	15–24	25–34	P	21–35	36–50	51–69	P
N (%)	148 (43.7)	161 (47.5)	30 (8.8)		175 (51.6)	120 (35.4)	44 (13.0)	
Men, n (%)	50 (33.8)	62 (38.5)	17 (56.7)	0.06	80 (45.7)	33 (27.5)	16 (36.4)	0.006
Serum creatinine, mg/dL								
mean (SD)	0.9 (0.2)	1.1 (1.0)	1.1 (1.3)		1.0 (3.0)	1.0 (1.1)	0.8 (1.2)	
range	0.6–1.5	0.6–2.8	0.7–4.5	0.002	0.5–1.2	0.6–4.0	0.6–5.4	0.01
Proteinuria, mg/24 h								
mean (SD)	127 (63)	133 (45)	131 (53)	0.7	141 (53)	133 (49)	127 (48)	0.5
Mean BP	101 (13)	105 (14)	108 (19)	0.004	–	–	–	
Hypertension, n (%)								
1 medication	15 (65)	27 (68)	9 (60)		15 (65)	28 (70)	8 (53)	
2 medications	7 (30)	11 (28)	6 (40)	0.9	7 (30)	11 (28)	6 (40)	0.9
3 medications	1 (4)	2 (5)	–		1 (4)	1 (2.5)	1 (7	
Diabetes mellitus	9 (7)	12 (7)	2 (7)	0.8	9 (5)	10 (8)	4 (9)	0.5
BMI, kg/m^2								
baseline	23.8 (2.2)	23.8 (2.9)	23.2 (2.0)	0.6	23.4 (3.2)	24.3 (3.1)	23.5 (2.9)	0.2
last follow-up	27.0 (4.0)	26.2 (4.9)	26.3 (4.6)	0.04	26.5 (4.3)	27.2 (4.8)	26.4 (4.4)	0.04

End-stage Renal Disease Among Living-Kidney Donors: Single-center Experience

Ehab W. Wafa,[1] Ayman F. Refaie,[1] Tarek M. Abbas,[1] Mohamed A. Fouda,[1] Hussein A. Sheashaa,[1] Amani Mostafa,[2] Mohamed I. Abo El Ghar,[3] Mohamed A. Ghoneim[4]

Results:

- ***Of 2000 living donors, 8 developed end stage*** **renal disease; 6 were men (mean age,30.87 ± 5.84 years. Renal failure occurred 5 to 27years after donation. Renal transplant was done in 1 donor.**

- **Causes of end-stage renal disease were hypertension in 7 patients , diabetic nephropathy in 3 patients. Other possible causes included toxic nephropathy, chronic pyelonephritis, and preeclampsia .**

Experimental and Clinical Transplantation (2011) 1: 14-19

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Table 3. Postdonation comorbidities.

Comorbidity	Number of cases	%
Hypertension	7	87.5
Diabetes mellitus	3	37.5
Hyperuricemia and gout	3	37.5
Obesity (BMI > 30)	3	37.5
Proteinuria	6	75
Cardiovascular (IHD)	5	62.5
Toxemia of pregnancy	1	12.5
Infections:		
Viral:		
HBV	1	12.5
HCV	3	37.5
Depression	1	12.5

Abbreviations: HBV, hepatitis B virus; HCV, hepatitis C virus; IHD, ischemic heart disease

Finally, we conclude that live-kidney donation is a safe procedure, with a minimal complication rate in long-term follow-up. Strict eligibility criteria, close follow-up, and use of kidney biopsy for donors with declining renal function after nephrectomy are mandatory for better understanding of the natural history of their illnesses. Furthermore, consideration also should be given to establish a national, as well as an international, database for living-kidney donors for better evaluation for the policy of living donation.

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Summary and Conclusion

Living kidney donation remains a safe and acceptable surgical procedure.

Recent studies have provided evidence to estimate ESRD risk in donors & have demonstrated a numerically small increase in ESRD risk, and identified those groups at particular risk (black donors, young donors, donors genetically related to patients with ESRD, donors with increased BMI).

Importantly, the absolute risk of ESRD in donors remains low when compared to the general population. This data must inform donor assessment and consent, and emphasizes the importance of Long-term donor follow-up.

Recommendations

- Every effort should be done to select a suitable donor to ensure good functional outcome for recipients with no or minimal morbidity for the potential donors.
- We have to push forward deceased donation program to go in parallel to living donation.


Thank You

End-stage Renal Disease Among Living-Kidney Donors: Single-center Experience

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