



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

International Journal of Current Research  
Vol. 10, Issue, 10, pp.74726-74728, October, 2018

DOI: <https://doi.org/10.24941/ijcr.32849.10.2018>

INTERNATIONAL JOURNAL  
OF CURRENT RESEARCH

## RESEARCH ARTICLE

# IMPACT OF DONOR AGE IN OUTCOMES OF DECEASED DONOR RENAL TRANSPLANTOUR INSTITUTIONAL EXPERIENCE

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### ARTICLE INFO

#### Article History:

Received 09<sup>th</sup> July, 2018

Received in revised form

24<sup>th</sup> August, 2018

Accepted 19<sup>th</sup> September, 2018

Published online 31<sup>st</sup> October, 2018

#### Key Words:

Renal Transplant, Graft function, Graft Survival, Donor age, Renal Allograft.

### ABSTRACT

**Introduction:** Donor age may have an impact on the renal transplant outcome. Kidney transplantation from older donors may result in a worse outcome, and the survival benefit of kidney transplantation compared with dialysis may be reduced. The aim of this study was to evaluate the impact of donor age on graft function, graft survival and patient survival kidney transplant outcome.

**Aim & Objectives:** To evaluate the impact of donor age on graft function, graft survival and patient survival. **Materials and Methods:** Retrospective study, Conducted in the Institute of Urology, Madras Medical College and Rajiv Gandhi Government General Hospital, Chennai from 2004 to 2015 with sample size of 159 Patients. **Results:** We analyzed the influence of donor age on both initial graft function (IGF) and survival rate. Our data also suggested that CIT influenced patient and graft survival rates. Therefore, in order to improve the long-term survival of renal allografts efforts should focus on limiting CIT and the damage that occurs during this period.

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**Citation:** Dr. Vezhaventhan, G. 2018. "Impact of donor age in outcomes of deceased donor renal transplantour institutional experience.", *International Journal of Current Research*, 10, (10), 74726-74728.

## INTRODUCTION

Renal transplantation represents the best replacement therapy or patients with end-stage renal disease (ESRD). Significant advances in surgical techniques and immunosuppressive strategies have led to a dramatic improvement of the short and medium-term results of kidney transplantation, which may improve survival, the quality of life and is more cost-effective than dialysis treatment. With its increasing success, kidney transplantation has been offered to a growing number of elderly patients, and older recipients comprise currently the highest proportional increase of those on the waiting list; almost half of the patients awaiting renal transplants are 50 years. However, this created a great disparity between the number of transplantable grafts and the number of patients on the waiting list. Nowadays, the shortage of donor kidneys is the main factor limiting the wider use of kidney transplantation, and as a result, the use of kidneys from older donors has become widely accepted. Expanded criteria donor (ECD) kidneys became a reality more than a decade ago with the term of 'kidneys nobody wanted' and despite controversies on shorter graft survival, >50% of all currently transplanted kidneys are from donors >50 years. Although most of the recent studies reported acceptable medium-term graft and

patient survival in patients receiving marginal donor kidneys, kidney transplantation from ECD donors may result in a higher risk of graft failure with the increasing of donor age, and the estimated remaining lifetime is reduced when sub-optimal grafts are used. While it has been shown that the benefit of kidney transplantation is linked to recipient criteria such as age, waiting time and cause of ESRD, graft quality may be not strictly linked to ageing processes, and even compromised repair mechanisms in older kidneys as a consequences of ischaemia/reperfusion injury may also play a crucial role. More recently, it has been shown that the increasing recipient age is associated with an improved transplant survival, lower rates of rejection and superior outcome of older donor organs. We hypothesize that donor age will impact transplant outcome and may have an effect on survival benefit in wait-listed patients. To evaluate this interplay, we have studied the effect of donor age on graft and patient survival. Deceased donor renal transplant was started in our institute in year 1996 and till year 2016, 210 cases were done. Out of the 210 cases the survival percentage was 71.3 and the death percentage was 28.3 with a minimum of 1 year follow up period.

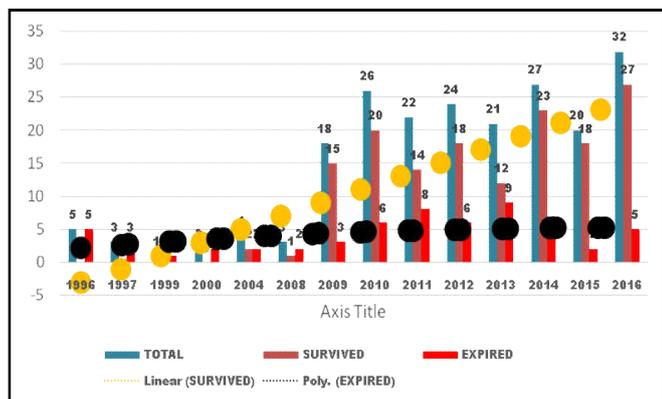
### Aims and objectives

#### To study the effects of donor age

- Graft function
- Graft survival
- Patient survival

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## MATERIALS AND METHODS

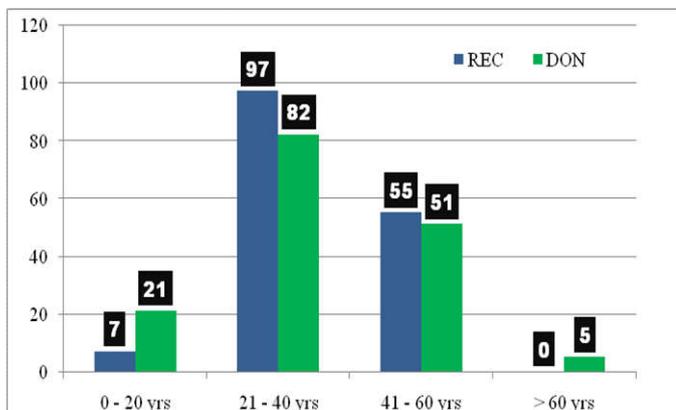
This was a Retrospective study conducted in the Institute of Urology, Madras Medical College and Rajiv Gandhi Government General Hospital, Chennai from January 2004 to June 2015. A total of 159 ESRD patients who underwent deceased donor renal transplant during the study period were included in the study. Patients who received Kidney from the Deceased Donor with following factors such as associated comorbidities like Diabetes Mellitus and Hypertension, Creatinine > 2 mg/dl, death due to causes other than RTA and with features of sepsis were excluded from my study. The following preoperative and post operative data were collected retrospectively from the records which includes Receptient age, Nature of kidney disease, baseline creatinine of recipient, donor age, donor sex, cause of death donor, Cold ischaemia time, Graft function using serum creatinine, Graft survival and the Patient Survival.

### Statistical analysis and results

**Age distribution:** The youngest donor who was 5 years old donated both her kidneys to his father who is doing well till now.

	Receptient	Donor
Youngest	17 YRS	5 YRS
Oldest	57 YRS	71 YRS

### Age distribution of receptient and donor



### Sex Distribution

	Receptient	Donor
Males	112	136
Females	47	23

### Graft Harvesting

	Rgggh	Others
Number	89	70
Percentage	56 %	44 %

**Graft function:** Divided the graft function into three groups

**Immediate graft function (IGF):** Patient not requiring dialysis in post op with serum creatinine values. < 1.5 within 5 days of surgery.

**Delayed graft function (DGF):** Patient requiring dialysis in post op with serum creatinine values. < 1.5 within 30-45 days of surgery.

**Primary non function (PNF):** Patient requiring dialysis with serum creatinine values persistantly higher

	IGF	DGF	PNF
NUMBER	65	69	25
PERCENTAGE	40.9	43.4	15.7

**Death Distribution:** Death with functioning graft–20

TOTAL	ALIVE	DEAD	
159	118	41	
DEATH	IGF	DGF	PNF
	9	11	21

**Graft loss distribution:** Total Number of graft loss in my study was 32

### Donor Age VS Graft Func

	MEAN	SD	P VALUE
IGF	32.03	13.45	<0.005
DGF	37.72	12.81	
PNF	33.56	13.46	

### Donor age VS graft loss

GRAFT LOSS	MEAN	SD	P VALUE
YES	34.43	13.45	>0.005
NO	34.81	12.81	

### Donor age VS pt survival

Pt survival	Mean	SD	P value
Yes	34.72	13.73	>0.005
No	34.78	13.29	

p value is statistically insignificant

### Conclusion

- Renal transplantation is associated with a significant survival advantage over dialysis in patients with end-stage Renal disease (ESRD) across all age groups. With the growth in the number of ESRD patients, the use of elderly deceased donors is becoming more frequent. Transplantation of kidneys retrieved from expanded criteria donors is one of the options to expand the number of available grafts, shorten the waiting time and increase the number of kidney transplant recipients.

- We analyzed the influence of donor age on both initial graft function (IGF) and survival rate.

Our data also suggested that CIT influenced patient and graft survival rates. Therefore, in order to improve the long-term survival of renal allografts efforts should focus on limiting CIT and the damage that occurs during this period.

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