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Outcome of Cadaveric and Living-related Renal Transplant over 10 Years

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Introduction

- Chronic kidney disease (CKD) affects over 800 million individuals globally, with diabetes mellitus and hypertension being the primary causes in Hong Kong.
- Renal transplantation is the gold standard treatment for end-stage renal disease (ESRD), significantly improving patient quality of life.
- Compared to dialysis, transplant recipients have markedly better outcomes, as reflected in mortality rates: 1.88 per 100 patient-years for transplants versus 17.89 for peritoneal dialysis and 18.89 for hemodialysis in 2016.¹
- Previous systematic review shows that overweight recipients (BMI>30) have a higher chance to experience delayed graft function and acute rejection, also postoperative complications like infection and incisional hernia.²

Objective

- The aim of the review is to review and compare the outcome of cadaveric and living-related renal transplant.
- To give a more in-depth insight on factors that might affect the outcome of people receiving renal transplant.

Methodology

- It is a retrospective review of renal transplant outcome in a tertiary referral centre. Donor and recipient characteristics were collected through an electronic medical record system.
- Cadaveric renal transplant (n=96) and living-related renal transplant (n=43) are included in the study.
- Outcome assessment includes post-operation creatinine levels, need of post-operative dialysis, graft failure rate over 5 years, etc.
- The association between the identified parameters and the outcomes of renal transplantation will be assessed using appropriate statistical tests.
- The data analysis is performed with SPSS or R. Categorical data will be analyzed using methods such as chi-square tests, while continuous data will be analyzed using techniques like one-way ANOVA tests.

References

- Chau KF. Living-related renal transplantation in Hong Kong. Hong Kong Med J. 2018 Feb 1;24(1):4-5. Available from: <https://www.hkmj.org/system/files/hkmj175078.pdf>
- Lafranca JA, IJermans JN, Betjes MG, Dor FJ. Body mass index and outcome in renal transplant recipients: a systematic review and meta-analysis. BMC medicine. 2015 Dec;13(1):1-8. Available from: <https://doi.org/10.1186/s12916-015-0340-5>

Results and discussions

Reasons for transplant

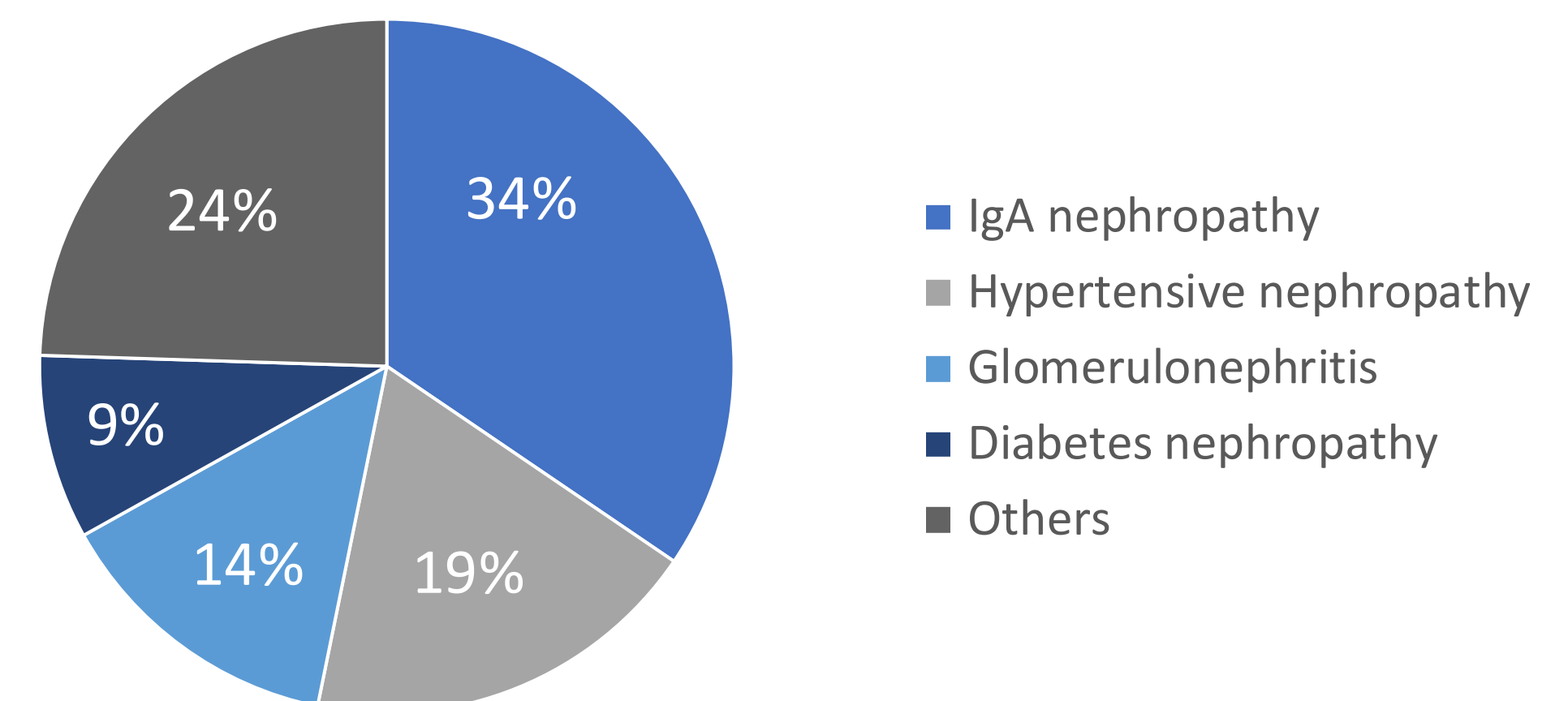


Chart 1. Reasons for renal transplant

- More patients were on renal replacement therapy in CRT than in LRRT (96 (100%) vs 25(58.1%) p = <0.001), indicating condition of patients waiting for CRT were more advanced compared to LRRT.

	Pearson's Correlation Coefficient (r)	P-value
With strong correlation (0.6-0.8)		
Recipient's weight	0.650	0.004
Donor's age	0.668	<0.001
With Moderate correlation (0.4-0.6)		
Recipient's BMI	0.510	0.038

Table 1. Pearson's Correlation Coefficient with Postoperative Creatinine 6 Months

- Increase in recipient's weight, BMI (r = 0.51, p = 0.038) and donor age were associated with an increase in postoperative 6-month creatinine level.

	CRT (n=96)	CRT (%)	LRRT (n=43)	LRRT (%)	P-value
Delayed graft function	10	10.4	1	2.3	0.196
Clavien-Dindo Grade ≥ 3	13	13.5	4	9.31	0.574
Acute tubular necrosis	29	30.1	4	9.3	0.008
Graft failure rate over 5 years	15	15.6	2	4.65	0.113

Table 2. Characteristics of Cadaveric and Living-related Renal Transplantation

- CRT had a longer warm ischaemic time (55.1 ± 27.4 min vs 40.4 ± 15.5 min p = 0.002) and acute tubular necrosis was more common.

Conclusion

- Recipients' preoperative weight and donors' age have shown strong statistical correlation with high postoperative creatinine after 6 months. They should be considered risk factors of lower treatment efficacy.
- It is statistically significant that acute tubular necrosis is more common in CRT.
- Both CRT and LRRT share similar graft function in the long term.