Association between estimated glomerular filtration rates at initiation of dialysis and all-cause mortality in kidney transplant recipients with a failing kidney allograft

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Background

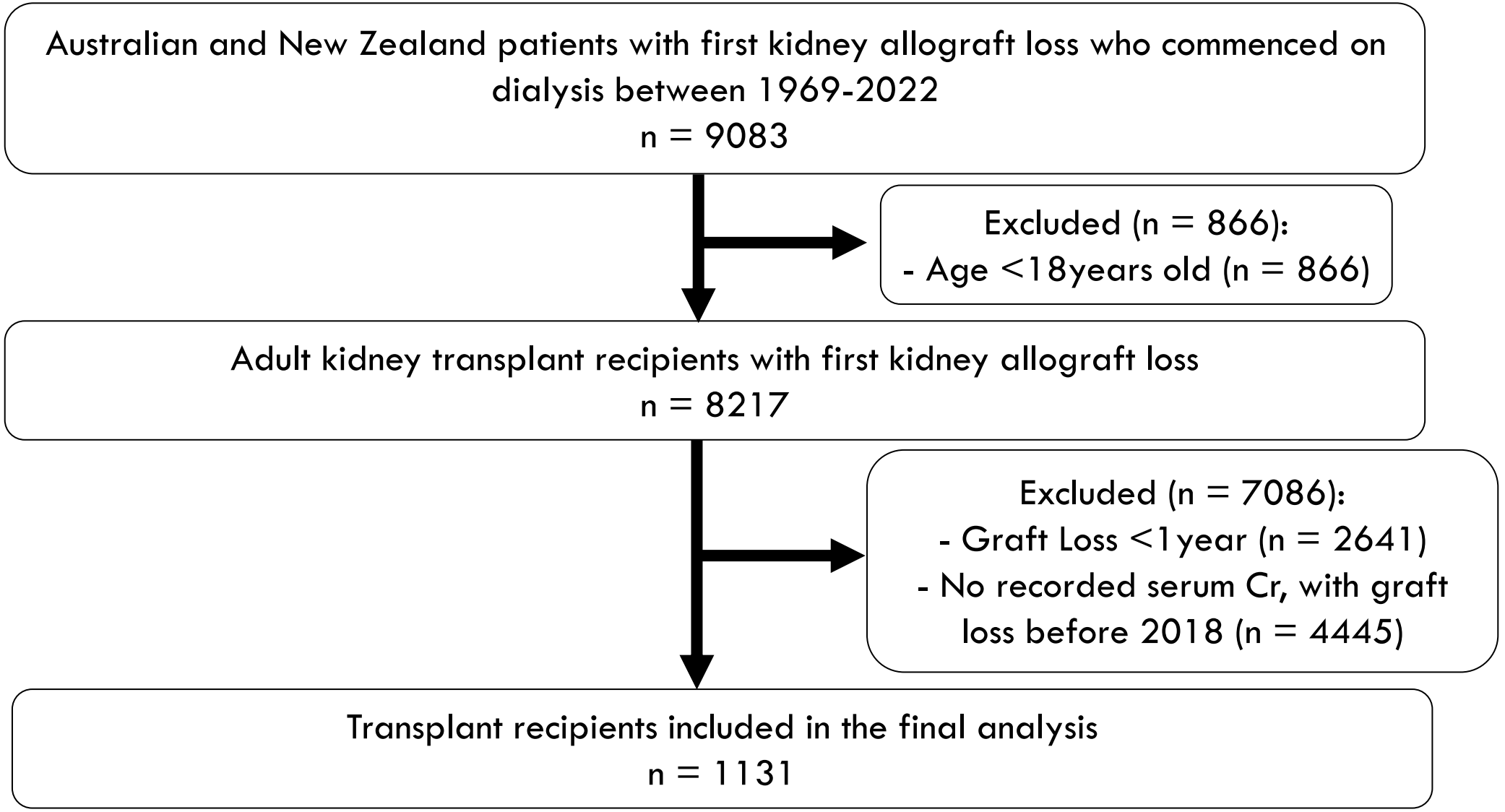
- The effects of estimated glomerular filtration rate (eGFR) thresholds at the time of dialysis initiation in incident dialysis patients on all-cause death have been examined in clinical trials, but not in patients with failing grafts.

- We aimed to determine whether eGFR trajectories post-transplantation and eGFRs at the time of dialysis initiation were associated with survival outcomes post-allograft loss.

Methods

- ANZDATA registry used to identify patients who experienced first kidney allograft loss and commenced dialysis 2018-2022.
- Latent class mixed models used to determine eGFR trajectory subclasses post-transplantation until dialysis initiation.
- Adjusted Cox PH models used to determine the association between eGFR at the time of dialysis initiation and eGFR trajectory subclasses with all-cause mortality on dialysis.

Results


Australian and New Zealand patients with first kidney allograft loss who commenced on dialysis between 1969-2022
n = 9083
Excluded (n = 866):
- Age <18years old (n = 866)
Adult kidney transplant recipients with first kidney allograft loss
n = 8217
Excluded (n = 7086):
- Graft Loss <1year (n = 2641)
- No recorded serum Cr, with graft loss before 2018 (n = 4445)
Transplant recipients included in the final analysis
n = 1131

Characteristics	Female	Male	Characteristics	Female	Male
Age at Transplant, years	40.9 (12.7)	41.7 (12.9)	**Cause of Primary Kidney Disease**		
Race			**Diabetic Nephropathy**	63 (15%)	115 (16%)
Māori	13 (3%)	23 (3%)	**Hypertension**	15 (4%)	44 (6%)
Pasifika	27 (7%)	28 (4%)	**Glomerular Disease**	166 (40%)	304 (48%)
Aboriginal & Torres Strait Islanders	24 (6%)	21 (3%)	**Familial/Hereditary**	69 (17%)	89 (13%)
Other	344 (84%)	614 (90%)	**Tubulointerstitial**	83 (20%)	76 (11%)
CLD*	60 (14%)	99 (14%)	**Other**	22 (5%)	44 (6%)
CAD**	80 (19%)	228 (32%)	**Age at Graft Failure**	53.2 (12.9)	53.8 (12.7)
PVD***	51 (12%)	119 (17%)	**eGFR at Graft Failure**	8.21 (3.9)	8.81 (3.8)
CVD***	49 (12%)	58 (8%)	**Rejections**	189 (45%)	316 (44%)
Diabetes	146 (35%)	243 (34%)	**State**		
Cancer	128 (31%)	225 (32%)	**ACT**	8 (2%)	16 (2%)
Nonsmoker	270 (66%)	347 (51%)	**NSW**	93 (22%)	163 (23%)
Multiorgan	21 (5%)	30 (4%)	**NT**	8 (2%)	7 (1%)
Pancreas	19 (5%)	27 (4%)	**QLD**	78 (19%)	120 (17%)
Dialysis Modality			**SA**	31 (7%)	53 (7%)
HD	333 (80%)	599 (84%)	**TAS**	5 (1%)	12 (2%)
Home HD	10 (2%)	19 (3%)	**VIC**	108 (26%)	166 (23%)
PD	76 (18%)	94 (13%)	**WA**	38 (9%)	61 (9%)

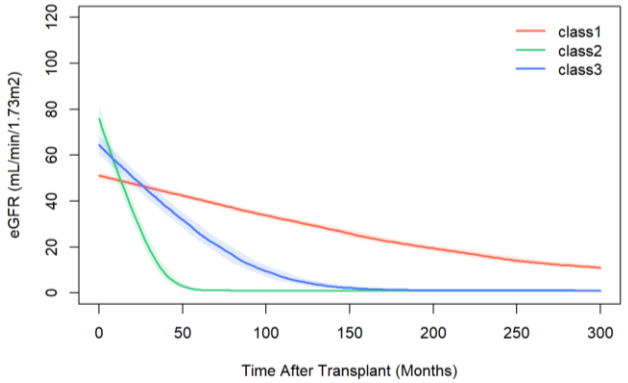
Data is expressed as median (IQR) for continuous variable and n (%) for categorical variables

*Chronic Lung Disease; **Coronary Artery Disease; ***Peripheral Vascular Disease; Cerebrovascular Disease

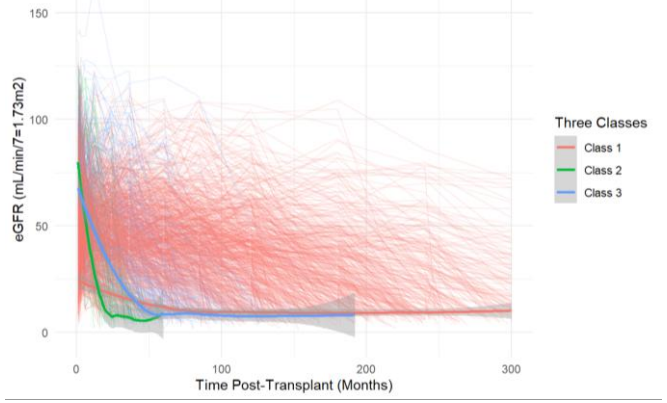
Results

- Three distinct classes of eGFR trajectories amongst 1131 eligible transplant recipients
  - Class 1 – slow decline (75.5%)
  - Class 2 – accelerated decline (6.4%)
  - Class 3 – progressive decline (18%).

Class-Specific Mean Predicted eGFR trajectories post-transplantation with three subclasses



Class-Specific Observed eGFR trajectories post-transplantation with three subclasses



Results

- Adjusted Cox model (HR 95%CI) found no significant differences in the risk of death post-dialysis initiation
  - Between the three classes of eGFR trajectory (Class 1 [reference], Class 2 [0.83, 0.44-1.54, p = 0.552], Class 3 [1.02, 0.71-1.44, p = 0.929]) or
  - Between different levels of eGFR, HR (95%CI) of 1.02 (0.99-1.05, p=0.198) per mL/min/1.73m^2 ↑eGFR.

Conclusion

- No significant differences in survival outcomes post-allograft loss between varying levels of eGFR at dialysis initiation, and between different eGFR trajectories post-transplantation.
- Suggests that patterns of eGFR decline post-transplantation, and eGFR at time of dialysis initiation in patients with failing allografts were not associated with long-term patient survival.
- eGFR at the time of dialysis commencement in patients who have lost their allografts may not influence long-term patient outcomes.