

Preeclampsia in kidney transplant recipients during pregnancy and its impact on graft survival

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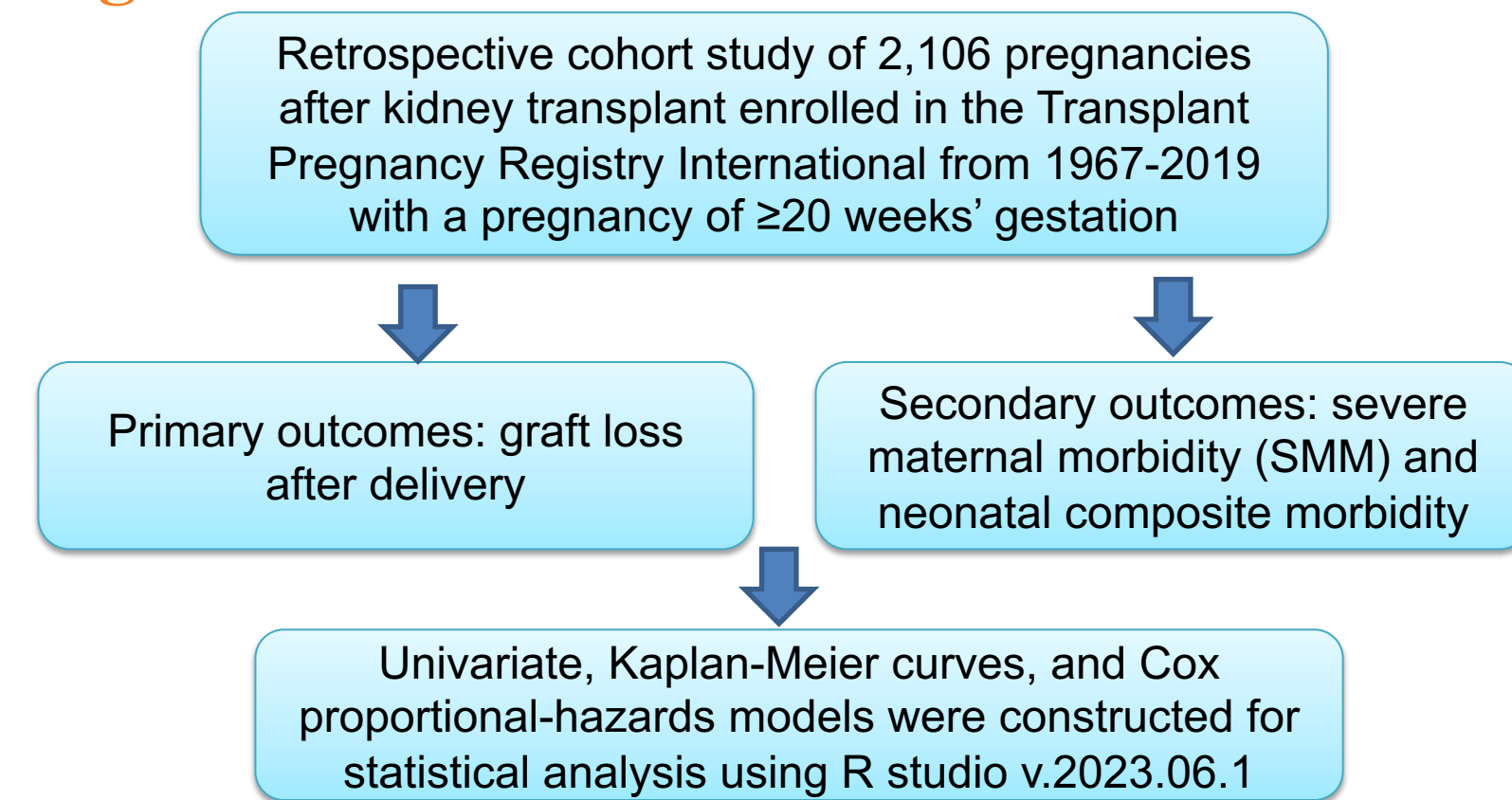
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Objective

We aim to characterize longitudinal graft survival from the time of delivery and investigate maternal and neonatal outcomes in kidney transplant recipients who experienced preeclampsia

Study design



- Severe maternal morbidity: 1 or more of the 21 Centers for Disease Control indicators of morbidity
- Neonatal composite morbidity: respiratory distress syndrome, bronchopulmonary dysplasia, persistent pulmonary hypertension, intraventricular hemorrhage, hypoxic ischemic encephalopathy, seizures, sepsis, necrotizing enterocolitis, fracture, brachial plexus injury, cardiopulmonary resuscitation, or perinatal death

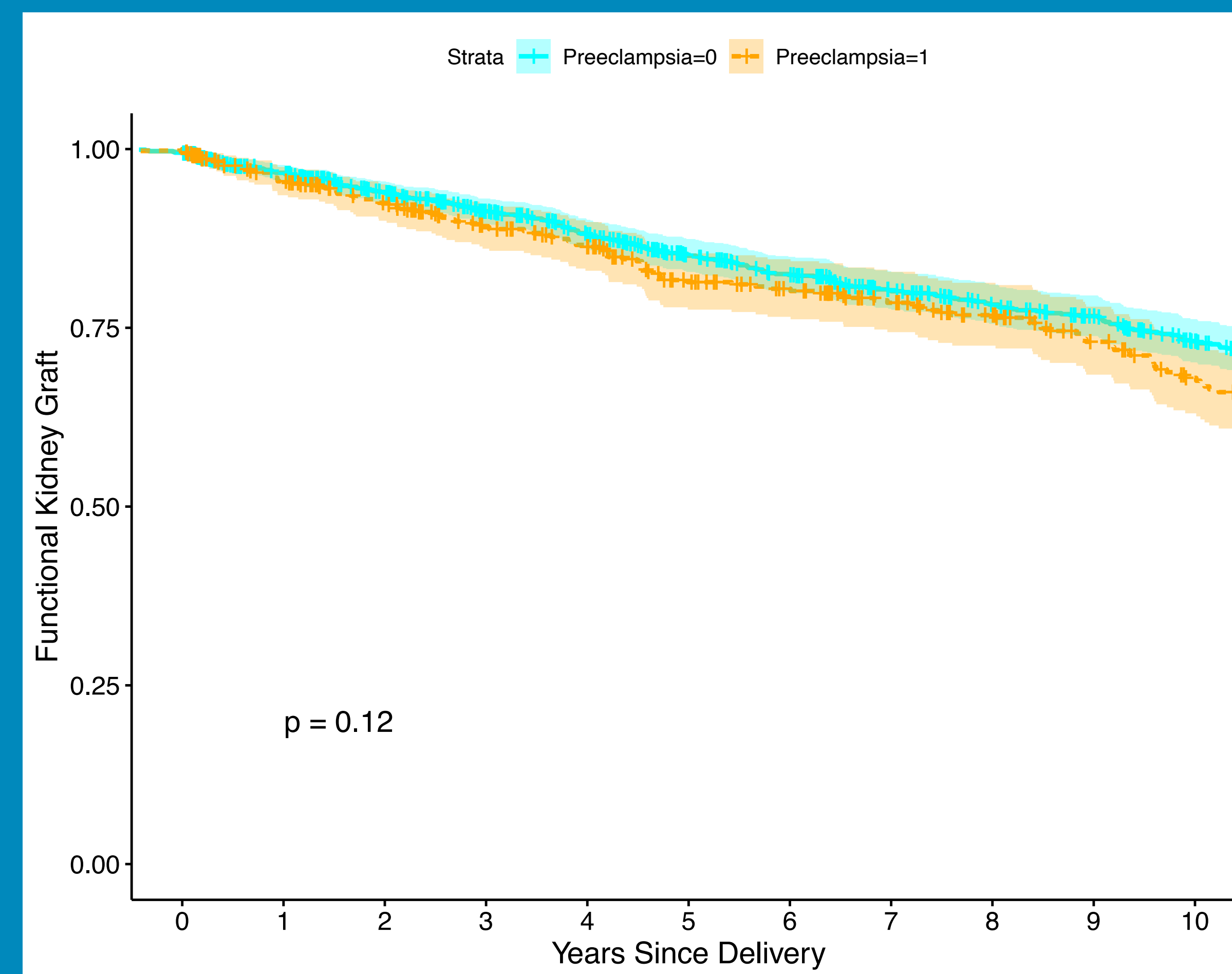
Results

- 447 (28%) developed preeclampsia, 1,127 (72%) did not
- Aspirin use in preeclampsia (6.4%) compared to no preeclampsia (9.0%) was similar (p=0.08)
- Preeclampsia is associated with severe maternal morbidity (p=0.02), neonatal composite morbidity (p<0.01), and NICU stays (p<0.01)
- There was no association with preeclampsia and acute kidney rejection or graft loss at 2 years
- There was no increased risk of graft loss from delivery after preeclampsia (aHR: 1.21, 95% CI: 0.99, 1.49)

Conclusion

- History of preeclampsia did not impact kidney graft survival
- Kidney recipients had high rates of maternal and neonatal morbidity
- Aspirin use was <10% among kidney transplant recipients, indicating a critical need for preeclampsia prevention

Preeclampsia in kidney transplant recipients is not associated with graft loss but is associated with higher severe maternal morbidity and neonatal composite morbidity.



Questions?

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Demographics	No Preeclampsia (n=1,127)	Preeclampsia (n=447)	P-value
Age	30.1 (26.1, 33.7)	30.0 (26.6, 33.6)	0.86
BMI, kg/m ²	23.0 (21.0, 27.0)	24.0 (21.0, 29.0)	0.01
Race			
Asian	64 (5.7%)	28 (6.3%)	<0.01
Black or African American	72 (6.4%)	20 (4.5%)	
White	760 (67.4%)	328 (73.4%)	
Other	90 (8.0%)	43 (9.6%)	
Unknown	141 (12.5%)	28 (6.3%)	
Year of conception	1997 (1990, 2007)	1999 (1993, 2010)	<0.01
Nulliparity	624 (55.4%)	275 (61.5%)	0.03
Multiples	35 (3.1%)	22 (4.9%)	0.02
Aspirin use	71 (6.4%)	40 (9.0%)	0.08
Prednisone use	988 (89.7%)	383 (86.3%)	0.05
Tacrolimus use	326 (28.9%)	175 (39.1%)	<0.01
Graft and morbidity outcomes			
Transplant-conception interval (years)	4.5 (2.3, 7.8)	4.2 (2.3, 7.7)	0.82
Creatinine before, mg/dL	1.1 (1.0, 1.4)	1.2 (1.0, 1.5)	0.80
Creatinine during, mg/dL	1.1 (0.9, 1.5)	1.2 (1.0, 1.7)	<0.01
Creatinine after, mg/dL	1.2 (1.0, 1.5)	1.3 (1.0, 1.7)	0.02
Acute rejection	13 (1.2%)	11 (2.5%)	0.08
Graft loss at 2 years	60 (5.5%)	31 (7.0%)	0.26
Long-term graft loss	396 (37.3%)	161 (36.3%)	0.74
Severe maternal morbidity	28 (2.5%)	21 (4.7%)	0.02
Neonatal outcomes (Livebirths)			
	No Preeclampsia (n=1,124)	Preeclampsia (n=469)	P-value
Cesarean birth	513 (45.6%)	303 (64.6%)	<0.01
Gestational age (weeks)	37 (35.0, 38.2)	35.0 (32.1, 37.0)	<0.01
Birthweight, (grams)	2778 (2268, 3147)	2353 (1765, 2920)	<0.01
NICU admission	171 (16.0%)	154 (33.0%)	<0.01
Neonatal composite morbidity	108 (9.6%)	110 (23.5%)	<0.01

Variable	N	Hazard ratio	p
Preeclampsia	1206	1.21 (0.99, 1.49)	0.07
History Rejection	862	Reference	
Yes	344	1.42 (1.16, 1.74)	<0.001
Transplant Conception Interval	1206	0.99 (0.97, 1.02)	0.64
Creatinine (mg/dL)	1206	1.05 (1.03, 1.08)	<0.001
Transplant Year	1206	1.00 (1.00, 1.00)	0.16
Donor		Reference	
Deceased	443		
Living Related	646	0.54 (0.44, 0.66)	<0.001
Living Unrelated	117	0.72 (0.45, 1.15)	0.17

