



Pregnancy and Delivery Outcomes in Solid Organ Transplant Recipients: A Modern Cohort

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Background

- Pregnancy in kidney and liver transplant recipients incur transplant-related risks combined with maternal physiological changes and have been associated with high-risk pregnancies.

Objective: We aimed to investigate obstetrical outcomes in these transplant recipients in a modern cohort.

Study Design

- We performed a retrospective case-control study of women with history of either kidney or liver transplant compared to a selected group of control patients who delivered at a large academic referral center over eight years (2012 – 2019).
- All previously transplanted patients who delivered a liveborn neonate during the study period were included.
- Controls were selected on similar baseline risk factors as the transplant patients.
- Demographic and outcome data were chart abstracted.
- Independent sample t-test and one-way ANOVA were used to compare means across groups. Chi-square was used to analyze differences between groups.
- Composite maternal morbidity was based on: >4 units PRBCs, ICU admission, sepsis, eclampsia, hysterectomy.
- Composite neonatal morbidity was based on: GA < 32 weeks, BW <1500g, neonatal death, RDS, seizure, IVH, birth trauma, HIE, necrotizing enterocolitis, BPD, sepsis, pneumonia).

Results

- 33 transplant pregnancy episodes were included with 35 neonates and a control group of 33 pregnancies with 35 neonates were matched for comparison.
- Mean maternal age and average gestational age at delivery were significantly lower in transplant recipients.
- Transplant recipients had increased risk of preterm delivery, hypertension, antepartum admission, preeclampsia, PPH, and NICU admission.
- Transplant recipients had significantly lower average neonatal birthweight and 5-minute APGAR score.
- There was no difference in mode of delivery, nor in composite maternal or neonatal morbidity.
- A trimodal comparison between kidney versus liver transplant recipients versus controls showed differences in rate of antepartum admission and hypertensive disease.

Conclusion

- Pregnancy in kidney or liver transplant recipients is associated with various obstetrical risks and complications.**
- These are important to discuss with patients for informed decision making and appropriate antepartum and delivery management.**

Pregnancy in kidney or liver transplant recipients is associated with obstetrical risks and complications that are important for informed decision making and antepartum and delivery management.



Questions?

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Table 1: Maternal and Neonatal Characteristics Between Transplant Recipients versus Controls

Maternal Characteristics	Transplant (n=33)	Control (n=33)	p-value
Mean maternal age	19.7±9.2	32.2±6.5	0.022
Nulliparity	29 (87.9%)	24 (72.7%)	0.163
Spontaneous Conception	32 (97.0%)	28 (84.8%)	0.172
Preterm delivery	6 (18.2%)	1 (3.0%)	0.046
History of hypertension	21 (63.6%)	4 (12.1%)	<0.001
Antepartum admission	21 (63.6%)	2 (6.1%)	<0.001
Vaginal Delivery	13 (39.4%)	19 (57.6%)	0.467
Postpartum hemorrhage	8 (24.2%)	1 (3.0%)	0.012
Chorioamnionitis	2 (6.1%)	1 (3.0%)	0.555
Preeclampsia	15 (45.5%)	4 (12.1%)	0.003
Administration of IV magnesium	9 (27.3%)	3 (9.1%)	0.057
Maternal morbidity	1 (3.0%)	0 (0%)	0.341
Neonatal Characteristics	Transplant (n=35)	Control (n=35)	p-value
Mean gestational age at delivery	36w0d±24d	38w3d±9d	<0.001
NICU admission	20 (57.1%)	4 (11.4%)	<0.001
Intrauterine Growth Restriction	4 (11.4%)	2 (5.7%)	0.393
Average neonatal birthweight	2490±721g	3188±518g	<0.001
5-minute APGAR score	8.4±0.9	8.8±0.6	0.036
Neonatal morbidity	6 (17.1%)	2 (5.7%)	0.133

Table 2: Maternal and Neonatal Characteristics between Kidney versus Liver Transplant Recipients versus Controls

Maternal Characteristics	Kidney Transplant (n=17)	Liver Transplant (n=18)	Control (n=18)	p-value
Mean maternal age	32.9±6.0	27.8±5.6	33.8±7.5	0.016
Antepartum admission	11 (4.7%)	10 (55.6%)	2 (11.1%)	0.003
Hypertensive disease	13 (76.5%)	8 (44.4%)	1 (5.6%)	<0.001