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Renal & Obstetric outcomes of kidney transplantation recipients Versus CKD stage 4, 5 patients

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Objectives: Chronic kidney disease (CKD) impairs reproductive function and increases the risk of adverse maternal and perinatal outcomes. Though reproductive function improves after kidney transplant (KT), pregnancy after KT remains challenging due to the concerns of long-term adverse clinical outcomes and limited previous analysis. This study aims to compare renal & obstetric outcomes between kidney transplant recipients (KTRs) vs. CKD stage 4-5 patients and find out factors that affect renal function in two groups.

Methods: A total of 35 KTRs and CKD stage 4, 5 patients who were pregnant in January 2003 to May 2020 from single center were enrolled and KTR group was 23 and CKD group was 12. We investigated renal and obstetric outcomes of KTR and CKD groups. Renal outcomes are death censored graft survival & native kidney survival, acute rejection rate on graft kidney, proteinuria & kidney function (eGFR) progression. Obstetric outcomes are composed of maternal (gestational DM, preeclampsia, pre-term labor, cesarean section and infection rate) and neonatal outcomes (still birth, congenital anomaly, intrauterine growth restriction (IUGR) and termination rate).

Results: Acute rejection rate was 4.3% in KTR group. Death censored graft survival rate 8.7% in KTR group and native kidney function loss rate 25% in CKD group show statistically meaningful differences *(P=0.008)*. Preeclampsia and pre-term labor rate was significantly higher in CKD group compared with KTR group. Infection rate was rather higher in KTR group. In CKD patients, pregnancy induce kidney function deterioration by persistent aggravation of proteinuria during pregnancy. On the other hand, kidney function and proteinuria variance during pregnancy restore after delivery in KTR group.

Conclusions: Our results suggest that renal and obstetric outcomes after KT are favorable than CKD patients. Persistent proteinuria during pregnancy especially affects CKD patient kidney function deterioration. Therefore, pregnancy after KT are more recommended than pregnancy in CKD status for child-bearing age CKD women.

Table 3. Pregnancy complications in women with a kidney transplant & Chronic kidney disease stage 4,5 in 3rd trimester

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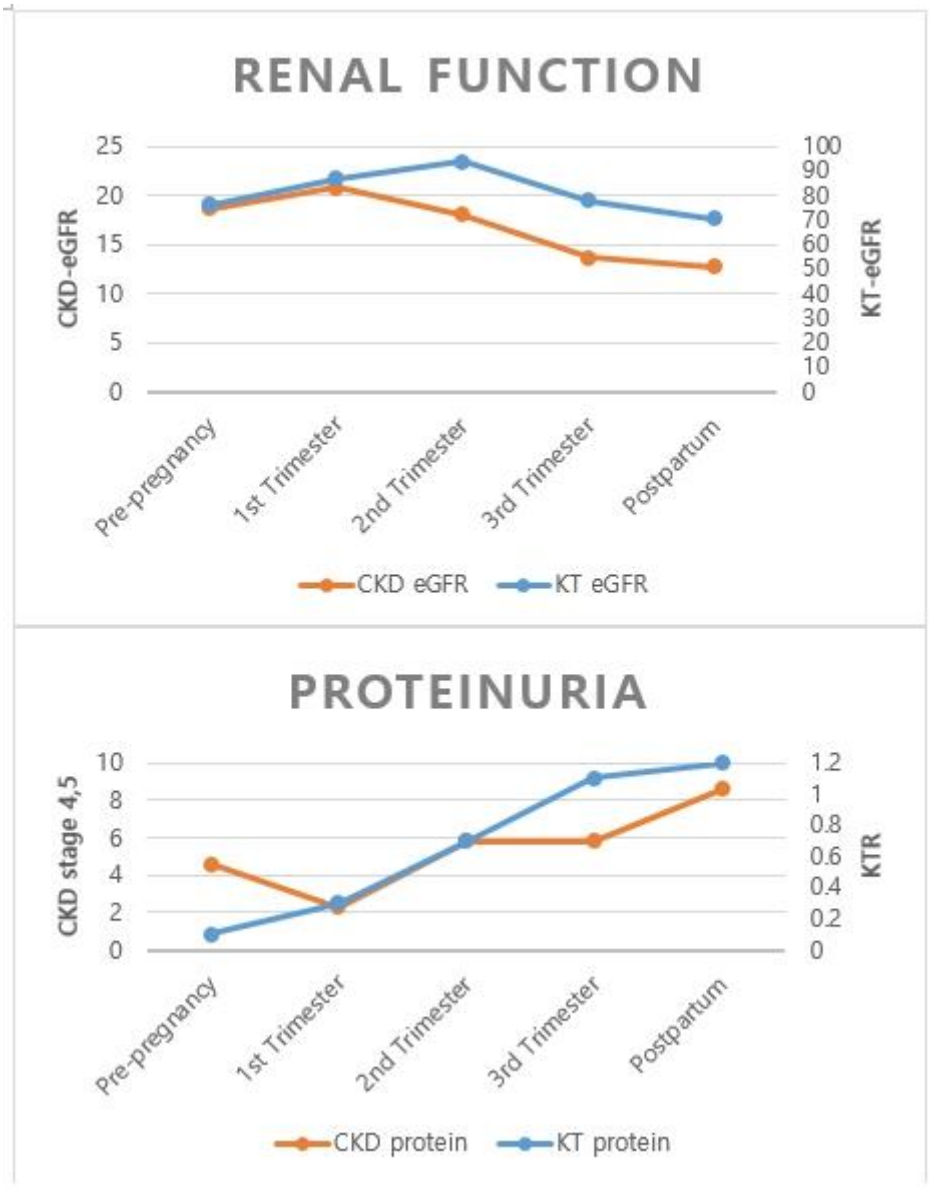
Outcome	Kidney Transplant recipients (n=23)	CKD stage 4,5 patients (n=12)	P - value	Adjusted Odds Ratio	Unadjusted Odds Ratio
Preeclampsia	5 (21.7%)	8 (66.7%)	0.024	0.239 (CI 0.028-2.033)	0.139 (CI 0.029-0.659)
Gestational diabetes	2(8.7%)	0	0.536	1	1.095 (CI 0.965-1.242)
Delivery by caesarean section	16(69.6%)	12 (100%)	0.070	1	1.438 (CI1.097-1.884)
Infection	10 (43.5%)	0	0.007	1	1.769 (CI 1.236-2.532)
Preterm labor	7 (30.4%)	10 (83.3%)	0.005	0.06 (CI 0.008-0.440)	0.088 (CI 0.015-0.508)
IUGR	3 (13.0%)	4 (33.3%)	0.2	1.153 (CI 0.089-14.877)	0.300 (CI 0.054-1.654)
Stillbirth	0	1 (8.3%)	0.343	1	0.324 (CI 0.199-0.526)

Values are expressed as n (%)

Abbreviations: CKD, chronic kidney disease; IUGR, intrauterine growth restriction

CKD-EPI & proteinuria variance between pre-preganacy to post-partum in KTR & CKD group


RENAL FUNCTION
CKD-eGFR
KT-eGFR
25
20
15
10
5
0
100
90
80
70
60
50
40
30
20
10
0
Pre-pregnancy
1st Trimester
2nd Trimester
3rd Trimester
Postpartum
CKD eGFR
KT eGFR
PROTEINURIA
CKD stage 4,5
KTR
10
8
6
4
2
0
1.2
1
0.8
0.6
0.4
0.2
0
Pre-pregnancy
1st Trimester
2nd Trimester
3rd Trimester
Postpartum
CKD protein
KT protein