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Pregnancy outcomes in renal transplant recipients

Sima Abedi Azar*

Department of Nephrology, Kidney Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

*Corresponding author

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A B S T R A C T

Renal transplantation (RTX) with rapid restoration of endocrine and sexual functions leads to increase possibility of pregnancy after kidney transplantation. With surgical and pharmacological improvements expected fetal and maternal outcomes are increased despite important complications in this regard. The purpose of this study was to evaluate the fertility rate, pregnancy outcomes and complication of pregnancy in renal transplant recipients (RTRs). We included all childbearing women transplanted in our center for 10 years. The analyzed variables were: patient age when dialysis started, age at transplantation, time between dialysis and transplantation and between transplantation and baby birth. We also considered renal function, immunosuppressive therapy, blood pressure, type of delivery, baby weight, Apgar score, and mother and baby follow-up. 13 pregnancies occurred in 11 patients among 173 RTRs in fertility age. The mean age was 31.2 ± 3.22 years, with a mean interval from transplantation to pregnancy of 3.15 ± 1.95 years. They all received a living donor kidney. All patients received steroids and Cyclosporine and Azathioprine. Mean creatinine level increased from 1.34 ± 0.25 to 1.57 ± 0.37 significantly ($p < 0.03$) but despite this increment all patients had stable renal function during pregnancy and 3 years follow up after that. The most maternal complication was hypertension in two and urinary tract infection in two cases and preeclampsia occurred in one case. Cesarean section was performed in all cases. The mean birth weight was 2796 gr with just one newborns less than 2500gr and Apgar score of all babies were more than 8. After RTX fertility rate is increases and except some complications most pregnancies are successful and renal function maintains stable with close observation.

Introduction

After kidney transplantation (RTX) endocrine system function improves (1-2) and rapid correction of endocrine and sexual

functions leads to increase possibility of pregnancy after kidney transplantation. Fertility as a quality of live indexes (3) is

one of the potential desires for women undergoing kidney transplantation (4) and its rate in kidney transplant recipients was markedly lower than general population (4) in different studies. A renal transplanted woman With stable renal function for about 2 years after transplantation: creatinine <1.5mg /dl, no or less than 500mg proteinuria, no episodes of acute rejection, and in a good general condition, mild or controlled hypertension can become pregnant (1).With surgical and pharmacological improvements expected fetal and maternal out comes are increased and quality of life and survival of patients and graft is improved. Lived birth is been reported about 60% but abortions are quite high (40%) (5). Different studies reported maternal complications like ectopic pregnancy, infections, renal failure, preeclampsia, proteinuria, post-transplant diabetes, and hypertension, graft loss within 2 years of delivery, placenta detachment, and post-partum hemolytic uremic syndrome. But despite good neonatal outcomes some fetal complications like higher rate of preterm delivery (49 to 54%), small for gestational age (33 to 45%), (6,7) is high spatially in patients with impaired renal function and hypertension. acute respiratory distress syndrome, infections, adrenal insufficiency, low white blood cell count, thrombocytopenia, anemia, hydronephrosis, can occurs in some cases. The recommended immunosuppressant consists of prednisone Azathioprine and cyclosporine or Tacrolimus. Mycophenolate Mofetil and Sirolimus are contraindicated. About the methods of delivery Cesarean section occurred in 79% of cases and Normal growth occurred in 95% of the babies in different studies (8).

Most studies indicate that pregnancy after transplantation does not increase risk of graft loss (9-10) and rejection rates are

similar to the general transplant population (11). It has been reported Long-term developmental outcomes of surviving infants are good (12). Because the fertility rate and pregnancy outcomes aren't so clear in previous studies we aimed to study fertility rate and outcomes of pregnancy in our renal transplant recipients (RTRs).

Materials and Methods

We included all childbearing women transplanted in our center for 10 years. The analyzed variables were: patient age when dialysis started, cause of ESRD, age at transplantation, time between dialysis and transplantation and between transplantation and baby birth. We also considered renal function, immunosuppressive therapy, acute rejection episodes, blood pressure, type of delivery, baby weight, Apgar score, and mother and baby follow-up. Blood chemistry parameters were blood urea nitrogen, serum creatinine, urine analysis, 24hours urine for proteinuria, uric acid, liver enzymes cyclosporine level during follow up period.

Result and Discussion

From 729 RTRs 173 (23%) women were in fertility age, 13 pregnancies occurred in 11 patients among 173 RTRs in fertility age. The mean mother age was 31.2 ± 3.22 years at time of pregnancy, with a mean 3.15 ± 1.95 years interval between RTX and pregnancy. They all received a kidney from living donors. Mycophenolate Mofetil was stopped 6 months before pregnancy in patients whom had plane for pregnancy and stopped at the beginning of pregnancy in others so all patients received steroids and cyclosporine and Azathioprine during pregnancy. Mean creatinine level increased from 1.34 ± 0.25 to 1.57 ± 0.37 significantly ($P < 0.03$) but despite this increment all

patients had stable renal function during pregnancy and 3 years follow up after that. The most common maternal complication was hypertension in two (15.2%) and urinary tract infection in two cases (15.2%) but gestational diabetes occurred in one and preeclampsia occurred in one case (7.6%) led to termination in 32 weeks age of gestation. Cesarean section was performed in all cases. The mean gestational age were 35 ± 3.4 weeks with mean birth weight of 2796 gr with just one newborns less than 2500 gr and Apgar score of all babies were more than 8. We didn't find any association between cause of CKD and time being on dialysis and maternal complications in our study.

The pregnancy rate in kidney transplant recipients is significantly lower than general population about 3.3% in Gill JS study, it occurred in 6% of our transplanted patients like other studies(4). It has been reported that the age of pregnancy is going up recently, Our patients age were 31.2 ± 3.22 years and it was comparable with other studies (13,14,15) also the mean interval from transplantation to pregnancy of 3.15 ± 1.95 years similar to other studies(14,15).

Our data agree with those in the literature confirming that pregnancy after kidney transplant, although possible, carries an elevated risk to fetus and mother. In recent study maternal complications like hypertension, infection and preeclampsia was acceptable because of close observation and cooperation between nephrologists and gynecologists serous obstetric and perinatal complications didn't occur.

Regarding fetal complications even with premature birth and being small for gestational age, the Apgar score of babies were good and it reported in other studies.

Pregnancy in our patients didn't increase the risk of acute rejection but GFR of our patients were decreased even if didn't lead to pregnancy termination or other serious complications, except for one which induced, preeclampsia it has been reported in previous studies(3).

Conclusion

After RTX fertility rate is increases and except some complications most pregnancies are successful and renal function maintains stable with close observation.

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