Obstetrics In Renal Transplantation: A Series Of Cases Of Pregnancy Post Transplant Observed Over 24 Years

Corresponding Author:
Dr. Rubina Naqvi,
Associate Professor, Nephrology, SIUT, 74200 - Pakistan

Submitting Author:
Dr. Rubina Naqvi,
Associate Professor, Nephrology, SIUT, 74200 - Pakistan

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Obstetrics In Renal Transplantation: A Series Of Cases Of Pregnancy Post Transplant Observed Over 24 Years

Author(s): Naqvi R

Abstract

Objective: To study the course of pregnancy and its outcome in renal allograft recipients.

Patients and Methods: From November 1985 – December 2009, 2792 renal transplants were carried out; among them 631 were females, the potential females for pregnancies were 169. Incidence of hypertension, diabetes, pre-eclampsia, urinary tract infections, rejection during pregnancy and 3 months post childbirth and outcome of pregnancy studied in these cases.

Results: Among 169 potential candidates for post transplant motherhood 43 had 68 pregnancies. Thirty-seven pregnancies started with hypertension, rise in blood pressure during pregnancy noticed in 13. In 26 pregnancies Albuminuria from trace to 3+ was found and glycosuria in one. Blood sugar levels remained within normal range. UTI occurred during pregnancy in 13 pregnancies.

Among 68 pregnancies, 15 were abortions, 8 pre term deliveries, fresh still birth in five. Rest were full term deliveries. Mean birth weight was 2.4 ± 0.57, 7 newborns were of+5.6 years (range 1-22 years) serum creatinine values range from 0.94 – 3.0. One patient developed irreversible graft dysfunction soon after delivery. Another recipient who conceived at serum creatinine level of 3.08 became dialysis dependent after delivery.

Conclusion: Our study demonstrates that pregnancy does not reduce the renal graft survival but new born are at greater risk of premature birth and low birth weight.

Introduction:
Renal transplantation remains best option of therapy in patients with end stage renal failure (ESRF). Whereas suppressed ovulation and fertility is associated with ESRF, reversal of normal endocrine function has been reported within 4-6 months after renal transplantation. 1-3 Thus kidney transplant offers best hope for ESRF patients who keen to conceive. First pregnancy in renal transplant recipient was reported by Murray et al.4 since then there are many published reports focusing on impact of pregnancy on renal graft outcome 5-10 with a consensus on “that pregnancy does not have an adverse effect on graft function in stable graft function”.11

We analyzed foetal, maternal and graft outcome over a 24 years period from transplant recipients at a single centre in Pakistan. We have no comparative study from country for transplant population, except our own experience 12 thus have to refer towards studies published from UK, USA or other countries for comparison of results.1-11,13,15

Patients and Methods:
Between November 1985 – December 2009, total of 2792 renal transplants from live related donors were carried out at this center, among them 631 were females, after excluding unmarried, divorced, menopausal and female who have not yet completed one year or died during first year post transplant, the potential females for pregnancy remained 169. Among these potential candidates for post transplant motherhood 43 had 68 pregnancies.

Maintenance immunossuppression was Cyclosporin (CyA), Azathiaprine (Aza) and Prednisolone (Pred) in 51 pregnancies, CyA and pred in 6, Aza and Pred in 10 and Tacrolimus, Pred and Mycophenolate Mofetil (MMF) in 1, (MMF was discontinued at confirmation of pregnancy). Incidence of hypertension (new onset or worsening), diabetes, pre-eclampsia, urinary tract infections, rejection during pregnancy and 3 months post childbirth and outcome of pregnancy studied in these cases. Outcome of pregnancy reported as number of live births, mode of childbirth, miscarriages, premature births and intrauterine deaths. This was determined by retrospective review of the patient's records.

Results:
Among 169 potential candidates for post transplant motherhood 43 had 68 pregnancies. Parameters recorded are tabulated in Table 1 and 2. Thirty-seven pregnancies started with hypertension, on one or two drugs prior to conception. New onset hypertension or poor control on previous medications
noticed in 13, in 5 of them again decreased to previous levels within 3 months after childbirth. Albuminuria from trace to 3+ found in 26 pregnancies, in 14 it was prior to conception, while in 12 appeared during pregnancy. Four out of 12 had other features of pre eclampsia. One of recipient was diabetic her blood sugar levels remained controlled with adjustment in Insulin dosages. Blood sugar levels remained within normal range in all, glycosuria noticed in one which reversed after delivery. UTI occurred during pregnancy in 13. One patient developed acute hepatitis with hepatitis C virus and delivered prematurely.

Discussion:

Incidence of pregnancy in transplant patients is about 2-12 percent,7,15,21 which is significantly greater than in dialysis patients. If a woman has a well-functioning kidney transplant, her chances of having a healthy baby are about as good as for a woman without kidney disease. If a transplanted kidney works well, getting pregnant will not risk the kidney.7

Outcomes of pregnancy solely depend on pre-pregnancy renal function. If a woman has a pre-pregnancy serum creatinine level of less than 1.5 mg/dl chances of having a successful pregnancy are >90 percent.19 Only 11 percent of those with a well-working kidney transplant will develop pregnancy-related complications.7 However, if a pre-pregnancy creatinine is more than 1.5 mg/dl, the outlook for a successful pregnancy drops to 70-75 percent. One-third of these pregnancies end in therapeutic or spontaneous abortions.3 In our experience we observed that 19 out of 68 pregnancies had base line serum creatinine >1.5 mg/dl, majority of them conceived without prior counselling, and only 10 (52.6%) reached to normal full term, rest of them either had therapeutic or spontaneous abortions or delivered prematurely.

Should the pre-pregnancy creatinine elevate, especially when there is protein in the urine, there is a real risk that kidney function will worsen during pregnancy with permanent loss of some function. In present series four of our patients had serum creatinine >1.5 mg/dl and proteinuria at time of conception, in two of them it remained unchanged, in one post pregnancy mild elevation in serum creatinine from baseline while in one there was marked deterioration in renal function, though remained dialysis free.

The rate of preeclampsia in women with SPK is reported to be 34%.20 NTPR and UK studies also reported higher rates of preeclampsia (29-31%) in women with kidney transplants.9,13 Pre eclampsia is difficult to distinguish from worsening hypertension in pregnancy. It should be suspected in women with hypertension before 20 weeks' gestation in whom proteinuria or sudden increase in blood pressure, proteinuria, thrombocytopenia, or liver function abnormalities develop. It is more likely to occur in older women or those with underlying renal disease. Clues to the diagnosis of superimposed hypertension include hyperuricemia, proteinuria, or increased serum creatinine in the second half of pregnancy in women with chronic hypertension.21

In present study population 4 of 43 women (9.3%) had evidence of developing pre eclampsia , one of them delivered spontaneously and 3 required caesarean sections, all pre-term deliveries.

Pregnant transplant patients also risk infections, such as a urinary tract infection (UTI). As high as 42% occurrence of UTI during pregnancy in renal transplant recipients has been reported.22 If left untreated, a UTI can lead to the loss of a kidney. In our studied group 13 (19.1 %) developed UTI during pregnancy, 3 of these women requiring hospitalization and parenteral antibiotics.

Immunosuppressive drugs create a special concern in pregnant transplant recipients. Some of these medications have definite risks for babies, but none that are widely used cause congenital abnormalities. In our population one patient who conceived without prior counselling was taking Mycophenolate Mofetil, safety of which is not yet known, this was discontinued soon after confirmation of pregnancy.

Optimization of immunosuppressive medications and blood pressure control remain major goals of a medical team when caring for a patient. Frequent monitoring of renal function is essential. Risks of acute rejection are usually minimal and immunosuppressive medications are at maintenance dosages after two years of transplantation. Therefore, it is advisable to plan pregnancy at least two years after the transplant.14

Prematurity remains the main problem in babies born to kidney transplant recipients. The severity of this risk depends on maternal renal function and blood pressure control. Higher pre-pregnancy creatinine and uncontrolled HTN are associated with higher incidence of prematurity and its complications. Though by WHO definition low birth weight (LBW) is defined as < 2.5 kg,16 incidence of LBW is 31% in general population in South Asia, a published report from country17 and 33.9% reported from West Bengal, India.18 In present case series mean value of birth weight for all newborns was below WHO’s LBW, though 15 (33%) newborns had birth weight > 2.5 Kg, 7 (16%) were 10

Congenital anomalies not observed in our studied population and milestones are comparable to general
An important concern for potential mothers/health care team is the effect of pregnancy on long-term allograft function. In our studied case series we have followed up to maximum of 22 years so far (mean 11.8± 5.6 years) and among graft survivors serum creatinine remained stable throughout follow up with last reported mean 1.52± 0.97 mg/dl.

Conclusion:
Not much can be concluded or different from what is already described in literature, but this case series is only report from country and is expanded over close follow up for considerably long duration. Prior counselling of risks, readjustment of immunosuppression, close supervision of gestation especially in women with mildly deranged base line renal function appears more relevant in this part of world where data registry system is lacking and social issues at individual level more distinct.

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Illustrations

Illustration 1

Tables

Table: 1 Clinical and Lab Parameters

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<tr>
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<th>Pre-pregnancy</th>
<th>New onset During Pregnancy</th>
<th>Persisted after Child Birth</th>
<th>Hypertension</th>
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<th>New onset During Pregnancy</th>
<th>Persisted after Child Birth</th>
<th>Pre-Eclampsia</th>
<th>UTI during pregnancy</th>
<th>Serum Creatinine mg/dl (mean +STD)</th>
<th>Pre-pregnancy</th>
<th>During Pregnancy</th>
<th>Last recorded (follow-up 1-22 years)</th>
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