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Case Report

A successful pregnancy outcome in a known case of chronic kidney disease: a case report

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ABSTRACT

Chronic kidney disease (CKD) is defined as altered renal structure, function and morphology or glomerular filtration rate<60 ml/min for a minimum of 3 months. CKD affects approximately 6% women in reproductive age group in developed countries. The incidence is 0.03%-0.2% in pregnancy and if not diagnosed and treated on time, it may lead to poor prognosis. We are reporting a case of G2P1L1 at 24 weeks period of gestation with gestational hypertension, she was also a known case of CKD for 9 years not on treatment. She was followed up regularly with a multidisciplinary approach and successfully managed.

Keywords: Chronic kidney disease, Gestational hypertension, Pre-eclampsia

INTRODUCTION

Chronic kidney disease (CKD) is defined as abnormality in serum biochemistry, urinary constituents or renal structure present for 3 months or more, affecting ~0.15% of pregnancies. Incidence is rising due to increasing maternal age and obesity. These women adapt poorly to the physiological renal changes of pregnancy and as a consequence there is tendency for renal function to decline more leading to a poor feto-maternal outcome. It is the degree of renal impairment which directly correlates with adverse pregnancy outcomes.[1]

Physiological renal changes in pregnancy include increase in kidney length by 1 cm, volume increase by 30% and dilatation of ureter, renal pelvis and calyces leading to physiological hydronephrosis, predominantly on right side.[2]

GFR increases up to 30% in first trimester, peaks at 50% above pre pregnancy levels and then declines to 15-20% at term. Serum creatinine and urea remain unchanged.

During pregnancy there is vasodilatation which occurs immediately after conception resulting in decreased BP, increased cardiac output and increased renal blood flow and GFR due to increased progesterone, nitric oxide, relaxing and estrogen.

Glomerular hydrostatic pressure remains stable avoiding development of glomerular hypertension. Normoglycemia with glycosuria is seen. Erythropoietin levels are increased.

CKD in pregnancy is diagnosed when serum creatinine >2.5 mg/dl, blood urea> 40 mg/dl with proteinuria. Some of the causes are pyelonephritis, glomerulonephritis, diabetic nephropathy, nephrotic syndrome, SLE. Usually, patients present with increased frequency of micturition, fatigue and headache and on examination with pedal edema and hypertension.

Complications in pregnancy will be directly proportionate to the severity of the renal disease.[3]

CASE REPORT

A 32-years-old woman, G2P1L1, previous FTND 9 years ago, spontaneously conceived, known case of CKD for 9 years not on treatment, presenting to us at 24 weeks of gestation for antenatal check-up. On examination, BP-144/90, she was started on tab. labetalol 100 mg BD. All routine investigations were normal except blood urea-45 mg/dL and creatinine-2.5 mg/dl. Nephrology opinion was taken and advised to continue same treatment. Regular two weekly follow up was done with growth scan and creatinine level monitoring and renal artery Doppler. At 37 weeks, creatinine was 3.2 mg/dl with BP-150/100 despite tab. labetalol 100 mg TID with clinically detected IUGR. Nephrology opinion was taken and termination of pregnancy was done in view of uncontrolled maternal BP with deranged RFT and IUGR. Induction of Labor was done with Cerviprime gel and patient delivered vaginally, 2.1 kg, male baby with Apgar 7, 9. No other associated complications. Patient was shifted to ICU as per nephrology advice and daily monitoring of creatinine was done. She was discharged on day 5 with creatinine-2.5 mg/dl. She was followed up after one week and her BP was under control with anti-hypertensives.

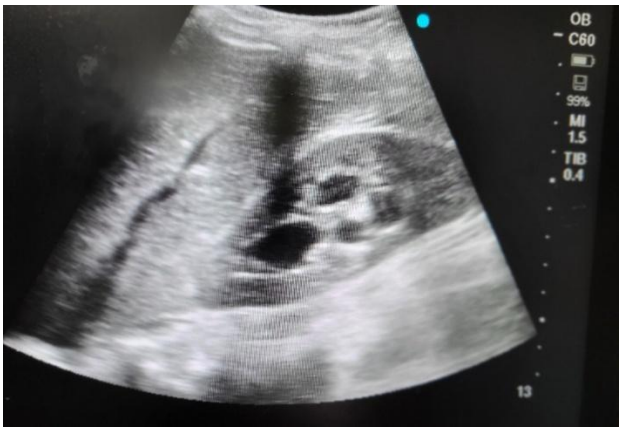

Figure 1: Ultrasound routine investigations.

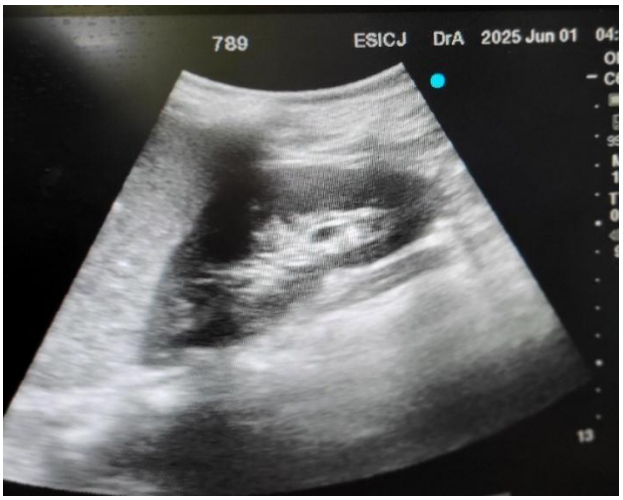

Figure 2: Ultrasound.

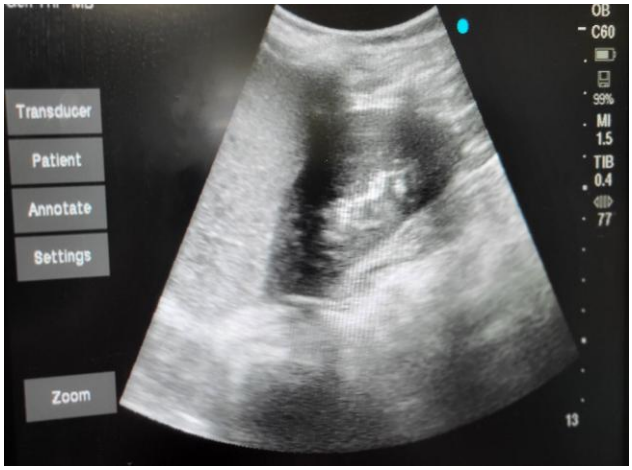

Figure 3: Ultrasound.

DISCUSSION

CKD affects ~6% women in reproductive age group in developed countries. The incidence is 0.03-0.2% in pregnancy. It is usually associated with pre-eclampsia, preterm labor, IUGR, LBW, perinatal mortality. Women with serum creatinine >1.4 mg/dl will have progressive renal deterioration and >2.3 mg/dl is contraindication for pregnancy. These patients should be followed up with serum creatinine, BUN, electrolytes and 24 hours urinary protein excretion and creatinine clearance. Piccoli et al stated that stages of CKD are directly linked to increase baseline risk of adverse pregnancy outcome.[4]

According to Kendrik et al and Piccoli et al IUGR is not at increased risk for CKD but Zhang et al states that there is a link for small for gestation age.[5-7]

Chronic pyelonephritis is the commonest cause of CKD in pregnant women. The 30-40% of untreated asymptomatic bacteriuria leads to pyelonephritis.

There is no risk of stillbirth in CKD.[2]

CKD patients can present with infertility as GFR is <25 ml/min secondary to hypothalamo-pituitary axis disorder due to hormonal dysregulation, hyper prolactinoma, decrease in Ovarian follicle reserve and decrease in libido, hypertension and proteinuria.

Stages of CKD

Stage 1: normal kidney with structural or urinary abnormalities- GFR: >90 ml/min, stage 2: mild kidney disease- GFR: 60-89 ml/min, stage 3: moderate kidney disease- GFR: 30-59 ml/min, stage 4: severe kidney disease- GFR: 15-29 ml/min and stage 5: end stage kidney failure- GFR: <15 ml/min or on dialysis

Once you diagnose CKD, preventive measure should be taken. Pre pregnancy serum creatinine should be <2 mg/dl and diastolic BP<90 mmHg and creatinine clearance <70

ml and if patient is a chronic hypertensive, it should be changed to tab. labetalol.

Antenatal prophylactic ecosprin 75 mg OD should be started and screening for diabetes to be done. Pre-conception counseling, dietary modifications, hypertension and diabetes management, UTI prophylaxis, thromboprophylaxis are all essential in managing CKD in pregnancy.

CONCLUSION

As CKD is very rare in pregnancy, if left untreated leads to bad prognosis. These patients need regular follow up with basic investigation with multidisciplinary approach including obstetrics, nephrology and pediatrics to have a better outcome.

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