



CLINICAL PROFILE AND OUTCOME OF ACUTE KIDNEY INJURY RELATED TO PREGNANCY IN A TERTIARY CARE CENTRE IN SOUTHERN TAMILNADU

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ABSTRACT Acute kidney injury is a threatening complication of pregnancy causing serious maternal and fetal morbidity and mortality, common in developing countries.

METHODS: A observational study was done between January 2018 to November 2018 to report the incidence, clinical spectrum and maternal & fetal outcome in AKI.

RESULTS: Total number of patients 40, Mean age-25.3±4.3 yrs. The incidence of AKI in pregnancy was 6%. Incidence of AKI most common in Postpartum period (80%), causes of AKI was Sepsis (40%), HELLP (20%), Postpartum hemorrhage (20%), Abruptio placenta (15%), Acute fatty liver of pregnancy (5%). Among them 80% of patients having preeclampsia as common risk factor. Live births was 80%. Among total pregnancy related AKIs 14 patients were managed conservatively and 26 needed dialysis. recovered patients were (N=38) 95%, and mortality was (N=2) 5%.

CONCLUSION: AKI in pregnancy commonly occurred in Postpartum period and Sepsis is the most common etiology.

KEYWORDS :

INTRODUCTION

In developing countries, pregnancy related AKI (PRAKI) is contributing 15-20% to the total number of AKI (1). Obstetric renal failure has bimodal occurrence with first peak in 8-16 wks of gestation due to septic abortion related complications and late peak due to obstetric complications like Preeclampsia, Eclampsia, Abruptio placenta, Uterine hemorrhage, and Puerperal Sepsis (2). PRAKI is on decline from 14.5% in 1987 to 4.3% in 2018 in INDIA (3). The spontaneous abortion rate is approximately 50% for pregnant women who require dialysis. We present here our observation with PRAKI from SOUTH TAMILNADU as our institute located in MADURAI is the main referral tertiary care centre with dialysis facility in this region.

MATERIALS AND METHODS

We conducted an observational study at our institute from January 2018 to November 2018. Patients with preexisting renal disease were excluded from our study. With the use of pre designed proforma detailed clinical history of number of pregnancies, outcome of previous pregnancies and presence of renal disease or hypertension was noted. Lab investigations included urine analysis, blood biochemistry, hemogram with peripheral smear, blood culture, urine culture, work up for DIC, serum compliments, ANA, ANCA were done when required. Etiology of AKI, dialysis dependency, maternal & fetal outcome was noted.

DEFINITION

AKI: Serum creatinine increased about 1.5 times from the baseline or when the urine output decreased to less than 400 ml for more than 6 hrs or both

OLIGURIA: Urine output less than 400 ml/24 hrs

ANURIA: Urine output less than 50 ml/24 hrs

PREECLAMPSIA: BP >= 140/90 mmHg, after 20 wks of gestation in

a previously normotensive woman and proteinuria more than 300 mg in 24 hrs

ECLAMPSIA: Generalized convulsions or loss of consciousness occurring during pregnancy or postpartum period in preeclampsia

HELLP Syndrome: Hemolysis (characteristic peripheral blood smear, serum LDH >=600 U/L, total serum bilirubin >= 1.2 mg/ml), Elevated liver enzymes (serum AST >=70 U/L), and low platelet count (<100000/cu mm)

COMPLETE RECOVERY: Serum creatinine less than 1.2 mg/dl.

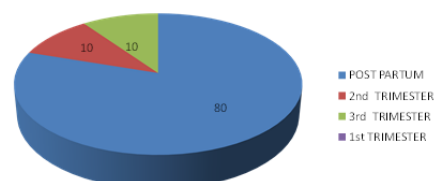
CHRONIC KIDNEY DISEASE: Serum creatinine >=1.5 mg/dl at 3 months.

RESULTS

Of the 660 cases of AKI 40 (6%) of cases were related to pregnancy. The patients age ranges from 15-45 yrs, with mean age of 25.3 ± 4.3. Incidence is more common in primi than multigravida. In our study we found that PRAKI is most common in the postpartum period: N=36 (80%).

The following figure gives the time period of occurrence of PRAKI

AKI IN PREGNANCY



CLINICAL PROFILE OF PATIENTS

FEATURES	NUMBER(%)
Oliguria	16(80)
Edema	2(10)
Fever	10(50)
Jaundice	11(55)
Proteinuria	4(20)
Anemia	10(50)
Thrombocytopenia	12(60)
Leucocytosis	9(45)
Disseminated intravascular coagulation	2(10)

ETIOLOGY

FEATURES	NUMBER(%)
Sepsis	8(40)
Postpartum hemorrhage	4(20)
HELLP	4(20)
Abruptio placenta	3(15)
Acute fatty liver of pregnancy	1(5)

MATERNAL OUTCOME	NUMBER(%)
Complete recovery	18(90)
Death	2(10)

FETAL OUTCOME	NUMBER(%)
Live baby	16(80)
Intra uterine death	3(15)
Intra uterine growth retardation	1(5)

The most common etiology for PRAKI, we found out in our study was Sepsis occurring in about 16 patients(40%)-this includes Septic abortions (N=2) and Puerperal Sepsis (N=14). E.COLI and Klebsiella are common organisms isolated from urine,blood and high vaginal swab of AKI patients,second most common cause of AKI is Post partum hemorrhage(N=8) 20%, then next was HELLP(N=8) 20%.Other causes includes Abruptio placenta(N=6) 15%.Most common presentation of AKI in our study was oliguria,fever ,thrombocytopenia and jaundice.Preeclampsia is the single most common risk factor found in all the categories of PRAKI (N=30) 75%. Among total pregnant AKIs 14 patients were managed conservatively,26(65%) needed dialysis. Indication for hemodialysis were oliguria,anuria,metabolic acidosis,acute pulmonary edema,hyperkalemia.Mean duration of dialysis dependency was 8 ± 2 days.Mean number of dialysis sessions was 5 ± 2 . Completely recovered was(N=38) 95%,and Mortality was (N=2)5%. Fetal outcome : live birth- 32(80%),intra uterine death- 6(15%),intra uterine growth retardation 2(5%).

DISCUSSION

Incidence of AKI in pregnancy was 6% which is almost similar (7%) in Saleemnajaret al study(7).The incidence which was nearly 14% in 1987 has drastically reduced due to legalization of abortion and better antenatal care. Mean age of study group in our study was 25.3 ± 4.3 yrs,while most of the studies showed mean age of 20-25 years Godara et al (6).The frequency distribution of PRAKI is bimodal in relation to the period of gestation.Primi gravida is most commonly affected as similar(52%) to gopalakrishnan study (1) but in contrast to Godara et al (4) where multigravida constituted 56.14% and Primigravida constituted 43.86%.

In our study PRAKI was frequent(80%) in postpartum period similar

to sivakumar et al 74.5%(5). But in contrast to godara et al (6) where majority of the patients 56.64 % presented in puerperal period and 22.8% presented in late pregnancy.

Puerperal Sepsis is the common cause 40% in our study similar to Sivakumar et al(5) 29%.Most common presentation of Sepsis is oliguria 80% similar to 65% as seen in silva et al(8).According to WHO Puerperal Sepsis is defined as infection of genitaltract occurring at any time between the rupture of membranes or labour and the 42 days postpartum . Next common cause Postpartum hemorrhage 20% and Abruptio or Antepartum hemorrhage constitutes 15% in our study similar to Postpartum hemorrhage 10.59% and Antepartum hemorrhage constitutes 8.29% of godara,trivedi et al(6). Significant blood loss due to antepartum or postpartum hemorrhage may cause ischemic injury and acute renal failure.

Antepartum hemorrhage may be due to placenta previa or concealed hemorrhage due to abruptio placentae which is usually associated with PIH.HELLP contributes 20% in our study in contrast to gopalakrishnan et al(1).studies showed the incidence of HELLP causing AKI ranges from 3 -40%. HELLP develops in approximately 1-2 per 1000 pregnancies overall and 10-50% of women with severe pre-eclampsia/eclampsia. The majority of cases are diagnosed between 28-36 weeks of gestation with 70% occurring prior to delivery . Only 20% of postpartum patients with HELLP have evidence of antepartum pre-eclampsia.In our study preeclampsia is the common risk factor associated with all the causes of PRAKI(75%) in contrast to only 21% constituting AKI in other studies.

The major adverse outcomes associated with pre-eclampsia are related to maternal CNS , hepatic ,renal dysfunction , bleeding related to thrombocytopenia ,preterm delivery , fetal growth restriction, abruptio placentae and perinatal death . In mild pre-eclampsia neonatal outcomes are generally good and comparable to those of normotensive women. Risk of recurrence in subsequent pregnancy depends upon severity of disease,gestational age at onset and gestational age at delivery.All the patients in our study received medical therapy for infection in addition to dialysis.

Pre-eclampsia is also associated with microangiopathy.Other conditions are thrombotic thrombocytopenic purpura and Hemolytic uremic syndrome which are characterized by thrombocytopenia, hemolytic anaemia,and multiorgan failure.TTP involves CNS and HUSpredominantly affects kidneys .

Requirement of hemodialysis is 65% similar 74% to ansari et al(2),arora et al(3),gopiani et al(4). Complete recovery is 95% in our study in contrast to 42% in ansari et al(2). Mortality was 5% in our study against reported incidence of 2-45% in the literature. Fetal loss in our study was 15% against 58% in Ansari et al(2).

CONCLUSION :

We conclude that the most common cause of AKI in pregnancy is sepsis.Early detection of cause of sepsis,early referral to tertiary centre and treatment with appropriate antibiotics may decrease the incidence of AKI.

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