ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 12, 2023

STUDY OF ACUTE KIDNEY INJURY IN POSTPARTUM FEMALES AT TERTIARY HEALTH CARE CENTER WITH SPECIAL REFERENCE TO FETAL AND MATERNAL OUTCOME.

Type of manuscript: Original Research Paper
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ABSTRACT: INTRODUCTION: Acute kidney injury is defined by a rise from baseline of at least 0.3mg/dl within 48 hr or at least 50% higher than baseline within 1 week or a reduction in urine output less than 0.5ml/kg per hr longer than 6 hr. Postpartum acute kidney injury constitutes an important cause of obstetric AKI. There are also however, pregnancy complications characteristics of each trimester that can be associated with AKI. AKI is associated with high foetal & maternal mortality in developing nations. Pregnancy-related kidney injury (PRAKI) Is a major cause of maternal and foetal morbidity and mortality in developing countries. While sepsis and postpartum haemorrhage (PPH) are the major etiologic factors for PPAKI (Postpartum acute kidney injury) in developing countries, severe preeclampsia, PPH and HELLP (haemolysis, elevated liver enzymes and low platelets) syndrome contribute to PPAKI in developed nations. **AIMS AND OBJECTIVES:** To study epidemiological factors, clinical progression and maternal/foetal outcome in pregnancy related kidney injury patients at Tertiary health care centre. **MATERIALS AND METHODOLOGY:** A prospective, observational study was conducted of 25 postpartum females were admitted in sola civil hospital. A detailed history was taken including obstetric history and clinical profile on admission. Obstetric history included parity, history of antenatal follow up, nature and place of delivery, maternal and foetal outcome. They were studied with respective to their history, clinical features, laboratory parameters, precipitating factors and renal outcome. **DISCUSSION:** The most common age group affected was 24-29 years with 64% patients were multigravida. Puerperal sepsis (56%) was the most common aetiology responsible for postpartum Acute kidney injury. Followed by postpartum haemorrhage, preeclampsia, HELLP syndrome, and HUS. All patients were managed by haemodialysis. One third of patients 7 patients (28%) required operative management in the form of evacuation of retained products of conception and 1 patient (4%) required obstetric hysterectomy. 40 % patients had complete recovery whereas 20% patients had partial recovery and rest 32 % patients had no renal recovery and were on renal replacement therapy. Maternal mortality in present study was 8 % and was attributed to septic shock, DIC, and ARDS. Foetal death occurred in 44% and rest were alive. Among all foetal birth only 32 % foetal birth were full term. **CONCLUSION:** Puerperal sepsis is the most common cause for postpartum acute kidney injury. Despite improvement in antenatal care, out health care

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policies need to address the gaps in providing good quality pregnancy care which can go a long way in reducing maternal and foetal mortality.

KEY WORDS: Acute kidney injury, Preeclampsia, Puerperal sepsis, Postpartum haemorrhage, Haemodialysis

INTRODUCTION: Acute kidney injury is defined by a rise from baseline of at least 0.3mg/dl within 48 hr or at least 50% higher than baseline within 1 week or a reduction in urine output_less than 0.5ml/kg per hr longer than 6 hr. Postpartum acute kidney injury constitutes an important cause of obstetric AKI. AKI is the abrupt loss of kidney function, resulting in the retention of urea and nitrogenous products and in the dysregulation of extracellular volume and electrolytes. AKI during pregnancy can be caused by any of the disorders leading to AKI in general population. There are also however, pregnancy complications characteristics of each trimester that can be associated with AKI. [1,2] Most reviews estimate that, in countries with adequate antenatal care, approximately 1 in 20,000 pregnancies are affected by AKI severe enough to require kidney replacement therapy. [3] The incidence may be higher in countries where antenatal care is less available and in settings where illegal abortions are performed. [4,5] AKI is associated with high fetal & maternal mortality in developing nations. Pregnancy-related kidney injury (PRAKI) Is a major cause of maternal and fetal morbidity and mortality in developing countries. With improvement in antenatal and postnatal care, the incidence of PRAKI in India has steadily declined from 22% in 1960s, to 13% in 1980sand further down to 3-7 % I 2000s. While sepsis and postpartum haemorrhage (PPH) are the major etiologic factors for PPAKI (Postpartum acute kidney injury) in developing countries, severe preeclampsia, PPH and HELLP (haemolysis, elevated liver enzymes and low platelets) syndrome contribute to PPAKI in developed nations. Rare causes include haemolytic uremic syndrome (HUS), which is an important causes of end stage renal disease (ESRD) in this population.

AIMS AND OBJECTIVES:

- To study epidemiological factors at Tertiary health care centre-of acute kidney injury in postpartum females.
- To study clinical progression in patient with acute kidney injury in postpartum females.
- To study the maternal and fetal outcome in acute kidney injury in postpartum females.

MATERIALS AND METHODOLOGY:

- A prospective, observational study was conducted of 25 postpartum females were admitted in sola civil hospital, Ahmedabad during 1st February 2023 to 15th September 2023.
- A detailed history was taken including obstetric history and clinical profile on admission. Obstetric history included parity, history of antenatal follow up, nature and place of delivery, maternal and fetal outcome. They were studied with respective to their history, clinical features, laboratory parameters, precipitating factors and renal outcome.

EXCLUSION CRITERIA:

Postpartum females with preexisting diabetes mellitus, hypertension, chronic kidney disease defined as s.cr >1.5 mg/dl or the presence of proteinuria > 1 + on dipstick or renal transplant recipients, contracted kidneys on ultrasound were excluded from analysis.

TYPE OF STUDY: Cross sectional, observational study

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RESULTS:

Table 1: age distribution

Age distribution in years	No of patients	Percentage
19- 23	6	24%
24-29	12	48%
30-35	5	20%
36-38	2	8%

Table 2: Parity distribution

Gravida	No of patients	Percentage
Primi gravida	9	36%
Multi gravida	16	64%

Table 3: Pregnancy status (in months)

Pregnancy status (In months)	No of patients	Percentage
7 months	5	20%
8 months	12	48%
9 months	8	32%

Table 4: Mode of delivery

Mode of delivery	No of patients	Percentage
LSCS	7	28%
Vaginal Delivery	18	72%

Table 5: Type of operation

Type of operation	No of patients	Percentage
Retained products evacuation	7	28%
Obstetric hysterectomy	1	4%
No operative management required	17	68%

Table 6: Etiology of AKI

Etiology involved	No of patients	Percentage
Puerperal sepsis	14	56%
Postpartum hemorrhage	10	40%
Preeclampsia	5	20%
HELLP syndrome	2	8%
HUS	1	4%

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Table 7: Recovery from AKI

Recovery	No of patients	Percentage
Complete recovery	10	40%
Partial recovery	5	20%
No recovery	8	32%

Table 8: Maternal outcome

Maternal outcome	No of patients	No of patients
Maternal mortality	2	8%
Survived	23	92%

Table 9: Fetal outcome

Fetal outcome	No of patients	No of patients
Fetal mortality	11	44%
Survived	14	56%

DISCUSSION:

The most common age group affected was 24-29 years. 64% patients were multigravida and rest were primi gravida. All the patients took regular antenatal care at hospital. Puerperal sepsis (56%) was the most common etiology responsible for postpartum Acute kidney injury. Followed by postpartum haemorrhage (40 %), preeclampsia (20 %), HELLP syndrome (8%), and HUS (4%). All patients were managed by haemodialysis (HID 100%) no one was treated conservatively. One third of patients 7 patients (28%) required operative management in the form of evacuation of retained products of conception and 1 patient (4%) required obstetric hysterectomy. 40 % patients had complete recovery whereas 20% patients had partial recovery and rest 32 % patients had no renal recovery and were on renal replacement therapy. Partial recovery means patient became dialysis independent but had persistent renal impairment. Maternal mortality in present study was 8 % and was attributed to septic shock, DIC, and ARDS. Fetal death occurred in 44% and rest were alive. Among all fetal birth only 32 % fetal birth were full term. Longer duration of oliguria (20 days) was observed in patients who had lesser recovery while complete recovery group had lesser duration of oliguria (9 days). Average number of haemodialysis sessions required for partially recovered patients was 11 per patient as against 6 per patient in completely recovered patients.

CONCLUSION:

The development of postpartum acute kidney injury in pregnancy is a major clinical challenge because it is necessary to consider the outcome of mother and foetus. Puerperal sepsis is the most common cause for postpartum acute kidney injury. It can be caused by specific pregnancy related disease which are not fully understood. Despite improvement in antenatal care, out health care policies need to address the gaps in providing good quality pregnancy care which can go a long way in reducing maternal and fetal mortality.

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