



ORIGINAL RESEARCH PAPER

Obstetrics & Gynaecology

EVALUATION OF CAUSE OF OBSTETRICS RENAL FAILURE AT TERTIARY CARE HOSPITAL IN KAKINADA

KEY WORDS:

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ABSTRACT

INTRODUCTION Obstetrics renal failure, also known as pregnancy related acute kidney injury, is a critically and potentially life-threatening complication of pregnancy. Pregnancy is characterized by numerous physiological changes, of which the fetus and placenta play an essential role. Several anatomical and physiological adaptations are happening in the kidney during the course of normal pregnancy. The awareness of these physiological changes in pregnancy is of utmost clinical dominance. ⁽¹⁾ Serum creatinine of 1.0mg/dl and BUN of 13mg/dl would be recognized as a normal value in non-pregnant individuals, but it reflects renal impairment ^{during pregnancy.} ⁽²⁾ Acute Renal Failure (A.R.F.) is the term that recently changed to Acute Kidney Injury (A.K.I.). A.K.I. is defined as an abrupt (within hours) decrease in the kidney function, which encompasses both injury (structural damage) and impairment (loss of function). PR-AKI (Pregnancy related acute kidney injury) is a heterogeneous disorder with multiple etiologies that can occur at any time during pregnancy and in the postpartum period. ⁽³⁾ Obstetrics renal failure remains a significant cause of maternal and fetal morbidity and mortality. There is a dramatic decrease in the incidence of pregnancy related acute kidney injury in the developing countries, whereas data from the developed countries showed variation in the incidence. For example, in India, pregnancy-associated A.K.I. requiring dialysis has reduced from 15% (1982-1991) to 10% (1992-2002) with a parallel decrease in the maternal mortality from 20% to 6.4%. The risk profile for pregnancy related acute kidney injury decreases due to the decline in poor antenatal care, sepsis-associated with abortion and childbirth, and improvement in the management of complications like abruptio placenta and postpartum hemorrhage.

AIMS AND OBJECTIVES

- 1. To evaluate the etiology of renal failure in obstetrics patients.
- 2. To evaluate maternal outcome in renal failure patients.

MATERIALS AND METHODS

- 1. **STUDY DESIGN:** Hospital-based prospective observational study.
- 2. **STUDY SETTING:** Tertiary care hospital at government general hospital Kakinada.
- 3. **STUDY SUBJECT:** pregnant and puerperal women with acute renal failure or preexisting renal disease, developing renal failure during pregnancy.
- 4. **STUDY PERIOD:** From January 2021 to June 2022.

RESULTS In this study, there were 30 cases of obstetrics renal failure. common age group of clinical presentation of A.K.I. was 20-25 years of age of 53.3%. 26.7% represented in 26-30 years of age. Primary etiological factor for obstetric renal failure was preeclampsia/ eclampsia of about 30.1%. H.E.L.L.P. contributes 10% in etiology. 26.7% of cases contribute hemorrhagic shock as an etiological factor. Septic shock also contributes 26.7% as an etiological factor in acute kidney injury. In this study, 40% of cases required 5-10 days of I.C.U. stay during treatment. 90% of cases required blood transfusion as a part of treatment in acute kidney injury. 43.3% required 0-5 units of blood, and 40% required 5-10 units of blood during treatment. Hemodialysis underwent in 40% of cases in acute kidney injury. 61.5% recovered with dialysis support. 38.5% of the cases had recovery without dialysis. **CONCLUSION** The incidence of obstetric renal failure in our hospital was 1.6%. The incidence of obstetric renal failure in developed countries is low due to improved obstetrics care and the legalization of abortion. Preeclampsia/ eclampsia is the most common cause of obstetric renal failure in developed countries, followed by hemorrhagic shock and sepsis. The present study did not find acute kidney injury in association with A.F.L.P. and T.M.P. (thrombotic microangiopathy), as it was an uncommon cause of A.K.I. Maternal and perinatal mortality remained high in acute kidney injury patients. Preterm and low birth weight are complications in A.K.I. cases. Early recognition and management of hypertensive disorders could reduce the incidence of acute kidney injury. Recognition and treatment of intravascular volume depletion to prevent renal ischemia are important. Assuring good antenatal and perinatal care, proper management of obstetric complications, and appropriate time referral of cases to the tertiary center are the crucial tools in preventing morbidity and mortality in obstetrics renal failure.

INTRODUCTION

Obstetrics renal failure, also known as pregnancy related acute kidney injury, is a critically and potentially life-threatening complication of pregnancy. Pregnancy is characterized by numerous physiological changes, of which the fetus and placenta play an essential role. Several anatomical and physiological adaptations are happening in the kidney during the course of normal pregnancy. The awareness of these physiological changes in pregnancy is of utmost clinical dominance. ⁽¹⁾ Serum creatinine of 1.0mg/dl and BUN of 13mg/dl would be recognized as a normal value in non-pregnant individuals, but it reflects renal impairment ^{during pregnancy.} ⁽²⁾

Acute Renal Failure (A.R.F.) is the term that recently changed to Acute Kidney Injury (A.K.I.). A.K.I. is defined as an abrupt (within hours) decrease in the kidney function, which encompasses both injury (structural damage) and impairment (loss of function). PR-AKI (Pregnancy related acute kidney injury) is a heterogeneous disorder with

multiple etiologies that can occur at any time during pregnancy and in the postpartum period. ⁽³⁾

Obstetrics renal failure remains a significant cause of maternal and fetal morbidity and mortality. There is a dramatic decrease in the incidence of pregnancy related acute kidney injury in the developing countries, whereas data from the developed countries showed variation in the incidence. For example, in India, pregnancy-associated A.K.I. requiring dialysis has reduced from 15% (1982-1991) to 10% (1992-2002) with a parallel decrease in the maternal mortality from 20% to 6.4%. The risk profile for pregnancy related acute kidney injury decreases due to the decline in poor antenatal care, sepsis-associated with abortion and childbirth, and improvement in the management of complications like abruptio placenta and postpartum hemorrhage.

An Italian study reported that A.K.I. in the developed country

declined from 1:3000 between the years 1956-1967 to 1:18000 between the years 1988-1994. However, a recent report from Canada revealed that A.K.I.'s incidence increased from 1.66 per 10,000 deliveries between 2003 and 2004 to 2.68 per 10,000 deliveries between 2009 and 2010. Since the rates of hypertensive disorders of pregnancy were elevated during that period and are considered to be one of the reasons for increment in the incidence of A.K.I. and were particularly evident among women with gestational hypertension with significant proteinuria.⁽⁴⁾

It must be remembered that the absolute number of obstetrics renal failure in developed countries is still lower than the developing countries. Major risk factors for obstetrics renal failure are preeclampsia, chronic hypertensive disorders, antepartum hemorrhage, postpartum hemorrhage, sepsis, and other infections. The prevalence of A.K.I. is 10% in India, remains unacceptably high, and still need augmentation in the obstetric practice.^(5,6)

AIMS AND OBJECTIVES

1. To evaluate the etiology of renal failure in obstetrics patients.
2. To evaluate maternal outcome in renal failure patients.
3. To evaluate the fetal outcome in renal failure patients.

INCLUSION CRITERIA:

- Patients who presented or developed renal failure during hospital stay were included in the study.
- Puerperal women with renal failure.
- Pregnant women having preexisting renal failure or renal transplant cases.

Criteria for renal failure:

- Serum creatinine >1.5 mg/dl
- Blood urea >40 mg/dl
- Urine output <400 ml in a 24-hour duration
- Need for dialysis.

EXCLUSION CRITERIA:

- Age of more than 45 years.
- The patient is not giving consent for the study.

MATERIALS AND METHODS

1. STUDY DESIGN: Hospital-based prospective observational study.
2. STUDY SETTING: Tertiary care hospital at government general hospital Kakinada.
3. STUDY SUBJECT: pregnant and puerperal women with acute renal failure or preexisting renal disease, developing renal failure during pregnancy.
4. STUDY PERIOD: From January 2021 to June 2022.

5. METHODOLOGY:

- Informed consent was taken from the study subjects involved in the study.
- Detailed history, clinical examination, and relevant laboratory investigation would be carried out for the pregnant and puerperal women developing renal failure or existing renal failure.
- Laboratory investigation: blood urea, serum creatinine, serum uric acid, electrolytes, liver function test, complete blood count, bleeding time, clotting time, P.T., A.P.T.T., INR when indicated, abdominopelvic and obstetrical ultrasound, urine routine are done.

RESULTS

This is a prospective observational study from January 2021 to June 2022. The total number of cases in my study were 30.

TABLE 1: Age distribution of cases:

A.G.E. (YEARS)	Number of patients (n=30)	Percentage
<20	2	6.7%
20-25	16	53.3%
26-30	8	26.7%
31-40	4	13.3%
Total	30	100%

Parity	No of patients (n=30)	Percentage
Primi	12	40%
P2	12	40%
P3	5	16.7%
>= P4	1	3.3%
Total	30	100%

The maximum number of cases belongs to 20-25 years of age (53.3%). 26.7% of cases belong to the 26-30 years of age group, 13.3% of cases belong to the 31-40 years of age group. 6.7% of cases belong to less than 20 years of age.

ABLE 2: Distribution of cases according to parity

GESTATION	NO OF CASES (N=30)	PERCENTAGE
SECOND TRIMESTER	2	6.7%
THIRD TRIMESTER	17	56.7%
PUERPERIUM	9	30%
PAST DATES	2	6.7%
TOTAL	30	100%

The majority of acute kidney injury cases occurred among multipara of about 60% as compared to primipara of about 40%.

TABLE 3: Distribution of cases according to trimester

Parity	No of patients (n=30)	Percentage
Primi	12	40%
P2	12	40%
P3	5	16.7%
>= P4	1	3.3%
Total	30	100%

The majority of cases of acute kidney injury occurred in the third trimester of 56.7%. 30% of the cases occurred in the puerperium. The least of 6.7% cases happened in the second trimester and past dates each.

GRAPH 4: Distribution of cases according to trimester

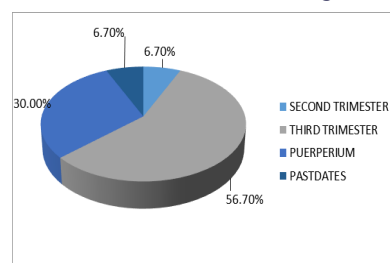


TABLE 5: Distribution of cases according to presenting complaints at the time of admission

Symptoms	Number of patients	Percentage
Reduced urine output	4	13.3%
Anuria	2	6.7%
Edema of feet	13	43.3%
Bleeding per vaginum	8	26.7%
Fever	4	13.3%
Abdominal pain	16	53.3%
Breathlessness	4	13.3%
Vomiting	4	13.3%
Loose stools	4	13.3%
Hypertension	6	20%
Altered sensorium	2	6.7%
Jaundice	5	16.7%

GRAPH 6: Distribution of cases according to presenting complaints at the time of admission

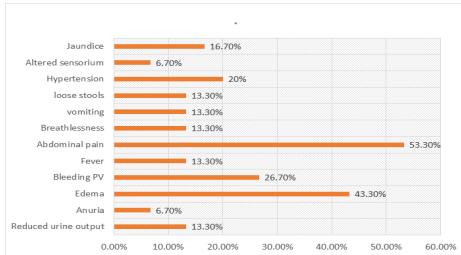


Table 7: Distribution of cases according to primary etiological factor.to

Primary etiological factor	Number of patients	Percentage
Preeclampsia	5	16.7%
Imminent eclampsia	2	6.7%
H.E.L.L.P.	3	10%
Eclampsia	2	6.7%
Hemorrhagic shock	8	26.7%
Septic shock	8	26.7%
Hypovolemic shock	1	3.3%
DKA	1	3.3%
Total	30	

Out of 30 cases, the primary etiological factor for acute kidney injury is mainly gestosis complicating pregnancy, contributing to about 40 %.

GRAPH 8: Distribution of cases according to primary etiological factor

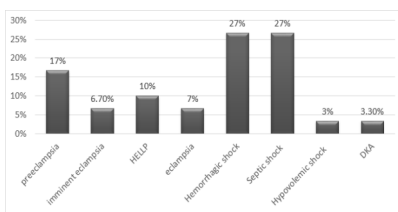


TABLE 9: Distribution of patients according to general physical examination at the time of admission.

General physical examination	Number of patients	Percentage
Pallor	16	53.3%
Icterus	5	16.7%
Edema	16	53.3%
Dehydration	9	30%
Febrile	11	36.7%
Tachycardia	21	70%
Hypotension	12	40%

Out of 30 cases, 16 cases (53.3%) had pallor at the time of admission., 35% of patients had Hb of <7g/dl. 16.7% had icterus at the time of admission itself.

TABLE 10: Distribution of cases according to the complication that developed during the study period

Complication	Number of patients	Percentage
Acute gastroenteritis	4	13.3%
Uremic encephalopathy	1	3.3%
Sepsis	3	10.0%
Disseminated intravascular coagulation	10	33.3%
Hepatic encephalopathy	2	6.7%
MODS(Multiorgan dysfunction syndrome)	6	20%

ARDS	1	3.3%
Pancreatitis	1	3.3%
Quadripareisis	1	3.3%
T.R.A.L.I.	1	3.3%

TABLE 11: Distribution of cases according to types of renal failure

Type	Number of patients	Mortality
Pre -renal	17 (56.7%)	9 (52.9%)
Renal	13(43.3%)	8 (61.5%)
postrenal	0	0
TOTAL	30	

The majority of acute kidney injury cases belong to the prerenal type of about 56.7%. Renal type of cases contributes about 43.3%. Among the prerenal kind of failure, the mortality of about 52.9%, whereas in renal type, mortality is highest at approximately 61.5%.

TABLE 12: DISTRIBUTION OF CASES ACCORDING TO MANAGEMENT AND OUTCOME

Treatment	Number of patients	Recovered	Died	Mortality
Conservative	18	5	13	72.2%
Renal replacement therapy	12	8	4	33.3%

TABLE 13: Distribution of cases according to renal replacement therapy

RRT	Number of patients	Recovered	Died
hemodialysis	12	8	4
Peritoneal dialysis	0	0	0
Maternal outcome	Number of patients (n=30)	Percentage	
Complete renal recovery	13	43.3%	
Death	17	56.7%	
Total	30	100 %	

Out of 30 cases, 13 cases (43.3%) had a complete renal recovery, and 17 patients (56.7%) had mortality.

Table 15: Distribution of cases according to recovery:

Recovery	Number of patients (n= 13)	Percentage
Recovery without dialysis	5	38.5%
Recovery with dialysis	8	61.5%

Table 16: Distribution of cases according to the duration of hospital stay

No of days in I.C.U.	No of cases (n=30)	Percentage
0-5	13	43.3%
5-10	12	40%
10-15	2	6.7%
>15	3	10%

Table 17: Distribution of cases according to blood transfusion

Blood transfusion	No of patients (n=30)	Percentage
Yes	27	90%
No	3	10%

Table 18: Distribution of cases according to the number of bloods transfused

Transfusio n required	Packed cells	F.F.P.	platelets	cryoprecipi tate	Whole blood

0-5	16	15	6	0	3
6-10	4	10	1	0	0

Table 19: Distribution of cases according to the mode of delivery

Mode of delivery	Number of patients (n= 30)	Percentage
Induced labour (term)	3	10%
Induced labour(preterm)	4	13.3%
Spontaneous labour(term)	2	6.7%
Spontaneous labour (preterm)	3	10%
Assisted	1	3.3%
L.S.C.S.	14	46.7%
laparotomy	2	6.7%
undelivered	1	3.3%

Table 20: Distribution of cases according to perinatal outcome

Perinatal outcome	Number of babies (n=29)	Percentage
Term (live)	12	41.4%
Preterm (live)	3	10.3%
Abortion	0	0%
IUD (term)	8	27.6%
I.U.D. (preterm)	5	17.2%
Stillbirth	1	3.4%

Table 21: Distribution of cases according to birth weight

Birth weight (grams)	Number of babies (n=29)	Percentage
500-1500	7	24.1%
1500-2500	8	27.6%
>2500	14	48.2%

Out of 30 cases, 29 cases were delivered, and 1 case expired in the antenatal period.

Table 22: Distribution of cases according to birth weight

Antenatal visits	No of cases	Percentage
Booked	8	26.7%
Unbooked	22	73.3%
Total	30	100 %

DISCUSSION

Obstetric renal failure incidence varies from developing to developed countries. The incidence of obstetrics renal failure in developed countries is decreased to 1-2.8% mainly due to improved obstetrics care and liberalization of abortion, whereas in developing countries, it is around 4.2-15%. The incidence of obstetric renal failure in the present study was 1.6%. Jamie Szczepanski et al. (61) analysis showed the incidence of acute kidney injury in the united states increased from 2.3 to 4.5 per 10,000 deliveries. The incidence of pregnancy related acute kidney injury in the Prakash et al. study is 5% (64). Najar et al. (62) and Goplani et al. (49) study showed 9% and 7% incidence, respectively. A recent study in Canada (67) revealed the incidence of A.K.I. is 2.68 per 10000 deliveries.

In the present study, obstetrics renal failure occurred during the late trimester is 56.7%, and in postpartum of 30%. In Goplani et al. (49) study A.K.I. in the postpartum period contributes 70-83%. In Prakash et al. (42) study, 91.6% of A.K.I. occurred in the third trimester and during delivery. Sivakumar et al. (61) study showed 74.5% of obstetric renal failure occurred in the postpartum period.

In the present study, the average age of onset of A.K.I. is 22.5

years, ranging from 18-40 years of age. In Prakash et al. (42) study median age is 26.8 years. In A. Krishna et al. (47) study, the mean age was 28.85+- 5.13 years. The difference in median age is due to the geographical difference in the age of marriage. Age factor was associated with maternal and perinatal complications, including preterm deliveries.

In the present study, obstetric renal failure occurred mainly in multigravida of about 60%. Mehrabadi et al. (4) analysis showed a temporal decline in nullipara, while previous cesarean section and multifetal pregnancy increased over the same period. In A. Krishna et al. (47) study, the mean parity in pregnancy related acute kidney injury was 2.65+-1.28.

In the present study, 30.1% of A.K.I. occurred due to preeclampsia/ eclampsia as a primary etiological factor. The primary etiological factor of preeclampsia/ eclampsia in comparison with other studies were

Table 20: Comparison of preeclampsia/eclampsia as an etiological factor with other studies

Present study	30.1%
Prakash et al. study (42)	46.9%
Goplani et al. study (49)	28.57%
Krishna et al. study (47)	14%

In the present study, primi associated with preeclampsia of about 23.3% in acute kidney injury cases, as primi is a risk factor for preeclampsia. Other etiological factors in the present study include 26.7% of patients due to hemorrhagic shock, 26.7% due to septic shock. In developing countries, septic abortion was the primary etiological factor for obstetrics renal failure and a major public health related issue. There was no case of septic abortion-related acute kidney injury in my study, which might be due to the reduced number of septic abortions and increased use of medical abortion. Rohina S. Aggarwal study (48) 20% cases due to antepartum hemorrhage and 10% due to postpartum hemorrhage. 40% due to puerperal sepsis and 36% due to preeclampsia, eclampsia, and H.E.L.L.P. syndrome. Kilari Sunil Kumar et al. (60) reported puerperal sepsis in 39.02% of patients.

In the present study, 10% of acute kidney injury cases were caused by H.E.L.L.P. syndrome. In Prakash et al. (42) study, H.E.L.L.P. syndrome contributes 6.85%. H.E.L.L.P. syndrome was described by Weinstein in 1982 due to severe complications of preeclampsia associated with significant morbidity and high perinatal and maternal mortality.

In the present study, hemorrhagic shock, including both antepartum (2 cases of 6.7%) and postpartum hemorrhage (6 cases of 20%) associated with acute kidney injury, contributes 26.7%. In Suraj M Godara et al. (63), antepartum hemorrhage of 14% and postpartum hemorrhage of 8% in pregnancy related acute kidney injury. In Natarajan Gopalakrishnan et al. (46) study, antepartum and postpartum hemorrhage were responsible for acute kidney injury of 8.29% and 10.59%, respectively. In Prakash et al. (42) study A.P.H. contributes 8.3%, and P.P.H. contributes 21.2% in A.K.I. patients.

Table 21: Comparison of A.P.H. & P.P.H. as an etiological factor with other studies

	APH	PPH
Present study	6.7%	20%
suraj M Godara et al (63)	14%	8%
Natarajan Gopalakrishnan et al (46)	8.29%	10.59%
Prakash et al. (42)	8.3%	21.2%

In this study, the clinical profile of patient at the time of admission in acute kidney injury was edema in 43.3%,

oliguria in 13.3%, anuria in 6.7%, fever in 13.3% and jaundice in 16.7%, bleeding per vaginum in 26.7%, anaemia in 53.3%, 16.7% with jaundice. In Natarajan Gopalakrishnan et al. (46) study, clinical symptoms of A.K.I. patients were edema in 58%, oliguria in 66%, anuria in 11%, fever in 35%, jaundice in 9%, anaemia in 6%. In this study, the patient was referred with severe complications at the admission of itself and led to high mortality.

In the present study, blood transfused in 90% of cases of acute kidney injury due to 53.3% admitted with anaemia and hemorrhagic shock of 26.7%.

In the present study, 46.7% underwent a cesarean section, and 6.7% underwent emergency laparotomy, 43.3% delivered vaginally, and 3.3% undelivered in obstetric renal failure patients. Cesarean section associated with medical complications leads to higher morbidity in renal failure patients. In Sivakumar et al. (61) study, 33.89% who underwent cesarean section contribute to A.K.I.

In this study, complications that developed in acute kidney injury patient include disseminated intravascular coagulation in 33.3%, MODS in 20%, Hepatic encephalopathy in 6.7%, uremic encephalopathy in 3.3%, quadriparesis in 3.3%, pancreatitis in 3.3%, ARDS in 3.3%, T.R.A.L.I. in 3.3%. In Natarajan Gopalakrishnan et al. (46) study, D.I.C. was seen in 22% of cases. In Muhammad Rafique Ansari et al. (63), D.I.C. has seen in 31 % of cases. In Rohina S. Aggarwal et al. (48) study, D.I.C. reported in 4% of cases.

Table 22: Comparison of complication D.I.C. with other studies

	D.I.C. (%)
Present study	33.3%
Natarajan Gopalakrishnan et al (46)	22%
Muhammad Rafique Ansari et al (53)	31%
Rohina S. Aggarwal et al (48)	4%

In the present study, renal replacement therapy (dialysis) was done in 40% of cases of acute kidney injury. Patients referred in poor G.C.S. (Glasgow coma scale) at the time of admission, making it difficult to undergo dialysis in remaining obstetric renal failure patient. In Aggarwal et al. (48) study, 66% of cases required hemodialysis. Ansari MR et al. (63) study revealed 32.5% of cases underwent hemodialysis, peritoneal dialysis in 15% of cases, and both modalities required in 12.5%. In Kilari Sunil Kumar et al. (60) study revealed dialysis requirement in 53.66%.

Table 23: Comparison of dialysis treatment with other studies

	Dialysis
Present study	40%
Aggarwal et al. (48)	66%
Ansari MR et al. (63)	60%
Kilari Sunil kumar et al (60)	53.66%

In the present study, the mortality of obstetrics renal failure is about 56.7%. The high mortality rate in Eswarappa M Gireesh et al. (64) is 37.6%. In Munna Lal Patel et al. (62) mortality rate was 41.7% in A.K.I. patients. In Sivakumar et al. (61) study, mortality was 23.72% in A.K.I. patients. In Rohina S. Aggarwal's study, maternal mortality was 12%. Geraldo B. Silva's (60) study showed a mortality of 30.9%. The factors associated with death were hypotension, presence of puerperal sepsis and hyperbilirubinemia, oliguria, and low levels of HCO3. High mortality in the present study due to the increased number of unbooked cases of about 73.3% and referral to our institute at the late stage of complication. Good antenatal care and

proper utilization of health care programs, and early referral to the tertiary institutions will reduce the mortality rate.

Table 24: Comparison of mortality with other studies

	Mortality (%)
Present study	56.7%
Eswarappa M Gireesh et al. (64)	37.6%
Munna Lal Patel et al. (62)	41.7%
Sivakumar et al. (61)	23.72%
Geraldo B. Silva et al. (60)	30.9%
Rohina S. Aggarwal et al. (48)	12%

In the present study, intrauterine death contributes to renal failure in 44.8% of cases. Patient admitted with I.U.D. with altered coagulation profile complicates the course of maternal outcome. As most of the cases were unbooked in my study of 73.3%, patients referred to our institute with the complication at a late stage. Prakash et al. (42) study reported I.U.D. in 17.5% of A.K.I. patients. In Muhammad Rafique Ansari et al. (63), I.U.D. reported in 14% of acute kidney injury patients. In the present study, preterm delivery contributes 27.5% in acute kidney injury affecting the perinatal prognosis in an adverse direction. In Prakash et al. (42) study, 40.9% delivered by preterm in acute kidney patients.

In the present study, perinatal mortality in acute kidney injury cases of about 48.3%. Prakash et al. (42) study showed the highest perinatal mortality of 38-55%. The major cause of perinatal mortality is prematurity, I.U.D., and stillbirth. In Mahesh Eswarappa et al. (45), perinatal mortality of 22% in A.K.I. In Munna Lal Patel et al. (62), perinatal mortality of 41.7%.

Table 25: Comparison of perinatal mortality with other studies

	Perinatal mortality (%)
Present study	48.3%
Prakash et al. (42)	23.5%
Mahesh Eswarappa et al. (45)	22%
Munna Lal Patel et al. (62)	41.7%

SUMMARY

- In this study, there were 30 cases of obstetrics renal failure.
- In this study, the most common age group of clinical presentation of A.K.I. was 20-25 years of age of 53.3%. 26.7% represented in 26-30 years of age.
- In this study, 60% of cases of acute kidney injury manifested in multiparas.
- In this study, 56.7% presented in the third trimester, and 30% cases manifested in the puerperium.
- In this study, the most common clinical profile of acute kidney injury patients presented with abdominal pain in 53.3% and pedal edema in 43.3% and reduced urine output in 13.3%, and anuria in 6.7% of cases.
- In this study, the primary etiological factor for obstetric renal failure was preeclampsia/ eclampsia of about 30.1%. H.E.L.L.P. contributes 10% in etiology. 26.7% of cases contribute hemorrhagic shock as an etiological factor. Septic shock also contributes 26.7% as an etiological factor in acute kidney injury.
- In this study, 53.3% of acute kidney injury patients admitted with anemia.
- In this study, 40% of cases admitted as hypertensive complicating pregnancy.
- In this study, the renal type of acute kidney injury comprises of about 61.5%, and prerenal type of renal failure is 52.9%.
- In this study, 33.3% of cases were complicated with disseminated intravascular coagulation in acute kidney injury. 20% of cases complicated with multiorgan dysfunction syndrome.
- In this study, rare complications which were encountered

during the study in acute kidney injury patients were quadriparesis of 3.3% and pancreatitis of 3.3% in preeclampsia patient.

- In this study, 16.7% of cases had jaundice at the time of admission itself.
- In this study, 36.7% had a fever, 40% had hypotension at the time of admission.
- In this study, 46.7% of cases delivered by cesarean section in acute kidney injury.
- In this study, 40% of cases required 5-10 days of I.C.U. stay during treatment.
- In this study, 90% of cases required blood transfusion as a part of treatment in acute kidney injury. 43.3% required 0-5 units of blood, and 40% required 5-10 units of blood during treatment.
- In this study, hemodialysis underwent in 40% of cases in acute kidney injury.
- In this study, 61.5% recovered with dialysis support. 38.5% of the cases had recovery without dialysis.
- In this study, maternal mortality contributes 56.7% in acute kidney injury cases.
- In this study, 51.7% of babies were low birth weight at the time of delivery.
- In this study, 27.5% delivered preterm in acute kidney injury cases.
- In this study, 44.8% delivered as intrauterine death (I.U.D.) in A.K.I. patients. 3.4% had a stillbirth in A.K.I. patients.
- In this study, the perinatal mortality rate was 48.3% in acute kidney injury cases.

LIMITATION:

Renal biopsy is not done in my study as it is not practiced in the institute. Nephrologist not available.

CONCLUSION

The incidence of obstetric renal failure in our hospital was 1.6%. The incidence of obstetric renal failure in developed countries is low due to improved obstetrics care and the legalization of abortion. Preeclampsia/ eclampsia is the most common cause of obstetric renal failure in developed countries, followed by hemorrhagic shock and sepsis. The present study did not find acute kidney injury in association with A.F.L.P. and T.M.P. (thrombotic microangiopathy), as it was an uncommon cause of A.K.I. Maternal and perinatal mortality remained high in acute kidney injury patients. Preterm and low birth weight are complications in A.K.I. cases. Early recognition and management of hypertensive disorders could reduce the incidence of acute kidney injury. Recognition and treatment of intravascular volume depletion to prevent renal ischemia are important. Assuring good antenatal and perinatal care, proper management of obstetric complications, and appropriate time referral of cases to the tertiary center are the crucial tools in preventing morbidity and mortality in obstetrics renal failure.

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