

A Study of Maternal and Foetal Outcome in Pregnancy Related Acute Kidney Injury**Dr. Alakananda^{1*}, Dr B.K Dutta², Dr Sanghamitra Das³**¹Professor, Department of Obstetrics and Gynaecology, Gauhati Medical College and Hospital, Guwahati, Assam, India²Associate Professor, Department of Obstetrics and Gynaecology, Gauhati Medical College and Hospital, Guwahati, Assam, India³rd year Post Graduate Trainee, Department of Obstetrics and Gynaecology, Gauhati Medical College and hospital, Guwahati, Assam, India**Original Research Article*****Corresponding author***Dr. Alakananda***Article History***Received: 20.11.2018**Accepted: 30.11.2018**Published: 30.12.2018*

Abstract: Pregnancy related acute kidney injury (PRAKI) contributes to 3.7% of overall acute kidney injury cases in Indian subcontinent. It is a major cause of maternal and foetal morbidity and mortality in developing countries. To find out the maternal and foetal outcome in cases of pregnancy related acute kidney injury. A total of 50 patients with PRAKI were enrolled in this hospital based observational study. Cases were divided according to KDIGO criteria and maternal and foetal outcome were analysed in relation to age, parity, pregnancy status, mode of delivery, etiological factors and need for dialysis. Out of 50 cases mortality was 14% (7 cases). Aetiology was found to be multifactorial with sepsis in majority of cases (92%) and maximum cases were in the postpartum period. All the expired cases belonged to multipara group and all having anaemia and toxemia of pregnancy. Out of 17 dialysed patients 29.4% (5 cases) expired.

Keywords: PRAKI, AKI, KDIGO.**INTRODUCTION**

Kidney Disease Improving Global Outcomes (KDIGO) defines acute kidney injury (AKI) as the increase in serum creatinine by ≥ 0.3 mg/dL (≥ 26.5 micromol/l) within 48 hours or increase in serum creatinine to ≥ 1.5 times the baseline within 7 days with urine volume < 0.5 ml/kg/h for 6 hours which may be oliguria with urine output < 400 ml/24hrs or anuria < 100 ml/24hrs [1].

It includes a group of syndromes that primarily manifest as a rapid decline in the kidney function in association with the accumulation of nitrogenous metabolic waste products. Pregnancy Related Acute Kidney Injury (PRAKI) is defined as AKI diagnosed anytime during pregnancy or 6 weeks postpartum [2]. In the past, septic abortion was an important cause of PRAKI apart from hemorrhage, dehydration and toxemia of pregnancy [3].

With legalisation of abortion, there is marked decline of PRAKI and related maternal death but still it is responsible for 15-20% of maternal and fetal morbidity and mortality in developing countries. Studies have shown that PRAKI remains as an important cause of maternal death [4] (9%-55%). In India, incidence has declined from 14.5% - 4.3%.

In spite of improvement in perinatal care, blood bank facilities, antibiotic prophylaxis, availability of

haemostatic drugs, better uterotonics for management of obstetric hemorrhage, facilities for dialysis there are reports of maternal death even today due to obstetric AKI and hence challenge remains in its prevention.

MATERIALS AND METHODOLOGY

This was a hospital based observational study conducted in the Department of Obstetrics and Gynaecology in consultation with the Department of Nephrology, Gauhati Medical College and Hospital, Guwahati from 1st July 2017 to 30th June 2018. 50 patients including antenatal, postnatal and postabortal cases with Acute Kidney Injury with serum creatinine > 1 mg/dL with or without oliguria or anuria were taken up for the study. The study excluded patients with pre-existing renal disease & patients with renal replacement therapy. Cases were analysed according to the following parameters.

RESULTS**Table-1: Distribution of cases according to maternal outcome**

Outcome	No of patients	Frequency (%)
Expired	7	14
Recovered	43	86
Total	50	100

In our study, 7 cases (14%) expired and 43 cases (86%) recovered (Table-1).

Cases were divided into 3 groups. Maximum patients were in the age group of 20-30 years with mean

age of 24.16 ± 5.024 years. Mortality was seen maximum in the age groups of 20-40 yrs (Table-2).

According to parity distribution maximum cases were found to be in multipara group (62%). All the expired cases belonged to the multipara group (Table-3).

Table-2: Distribution of age with maternal outcome

Outcome	18-20 yrs	20-40 yrs	Total
Expired	1	6	7
Recovered	11	32	43

Table-3: Relation of parity with maternal outcome

Maternal outcome	Multipara	Primipara	Total
Expired	7	0	7
Recovered	24	19	43

Table-4: Maternal outcome in relation to pregnancy status

Outcome	Antenatal	Postnatal	Postabortal	Total
Expired	0	5	2	7
Recovered	14	21	8	43

There were 14 antenatal, 26 postnatal and 10 postabortal cases in our study. Maximum cases were in the postnatal group (52%) out of which majority i.e:18 cases (69.2%) developed AKI following LSCS and 8 cases (30.7%) following spontaneous delivery. It was seen that incidence of AKI was more following

operative delivery. Out of the 7 expired cases, 5 cases were postnatal and 2 cases were postabortal (Table-4).

Maternal outcome in relation to etiology

All the cases had multifactorial etiology. Toxaemia of pregnancy and anemia were common to all the 7 cases that expired and 5 cases had sepsis.

Table-5: Dialysis and maternal outcome

Maternal outcome	Dialysis done (N=17)	Dialysis not indicated	total
Expired	5	2	7
Recovered	12	31	43

Among the 17 cases that required dialysis, 5 cases expired and 12 cases recovered. Timely dialysis improves maternal outcome (Table-5).

Out of the 14 antenatal cases, 7 cases delivered live baby, 3 cases delivered IUD babies and 4 cases delivered stillborn babies. In this study, perinatal mortality was found to 50% (7 out of 14 cases) (Table-6).

Table-6: Foetal outcome in cases of PRAKI

Foetal outcome	No of cases (N=14)	Frequency (%)
IUFD baby	3	21%
Live baby	7	50%
Still born	4	29%
Total	14	100%

DISCUSSION

In developing countries, PRAKI is an important cause of maternal and perinatal mortality and morbidity even today. In our study 14% cases expired and 86% recovered. A higher incidence of maternal mortality was reported by Najjar *et al.* (20%), Erdemoglu *et al.* (39%), Arrayhani *et al.* (24%) and Muhammad *et al.* (30.6%). Maternal mortality was maximum (85.7%) in the age group of 20-40 years. Maternal mortality in our study was higher compared to other studies by Das *et al.* (65.85%), Arrayhani *et al.* (73%) and Muhammad *et al.* (46%). Majority of cases were multipara 62% and was nearly similar to studies by Prakash *et al.* 79.60%, Puri *et al.* 73% and Muhammad *et al.* 73%. All the expired cases belonged to multipara group. 5 out of 7 expired cases were in the postnatal period. Various studies showed maximum cases of AKI developed during the postnatal period: Das *et al.* 63.5%, Kilari *et al.* 75.61%, Goplani *et al.* 72.85%, Arrayhani *et al.* 50% and Puri *et al.* 60%. Similar was the observation in our study with maximum cases of AKI in the postnatal group (52%). Regarding the mode of delivery we found incidence of AKI was more following operative delivery 46% and 17% following vaginal delivery. Dialysis was indicated in 34% cases in our study which is more than reported by Muhammad *et al.* (26.9%) and Arrayhani *et al.* (16.2%).

High perinatal mortality of 50% was observed in our study which was similar to other studies by Das *et al.* 50%, Krishna *et al.* 48.9% and Liu *et al.* 63.6%

CONCLUSIONS

- Obstetric AKI still remains as an important cause of maternal death and pregnancy loss.
- Mortality was more in multipara group.
- PRAKI mostly develops during postpartum period and more following operative delivery.
- Identification of cases at risk, awareness and anticipation required for early detection and initiation of treatment at the earliest.
- Adequate perinatal care, early detection and prompt treatment are required to optimise fetomaternal outcome in pregnancy related acute kidney injury.

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