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IASET

CROSS SECTIONAL STUDY OF ACUTE KIDNEY INJURY DURING PREGNANCY IN TERTIARY CARE GOVERNMENT HOSPITAL AN INDIAN PERSPECTIVE

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ABSTRACT

AKI occurs in about 13.30 million people per year, nearly 85% of whom live in the developing world, and no direct link between AKI and death has yet been shown, AKI is thought to contribute to about 1.7 million deaths every year. AKI is potentially preventable and treatable with timely intervention, but there continues to be high human burden. Which specific factors account for the poor outcomes and to what extent variations in care delivery contribute are unclear. The ability to provide lifesaving treatments for AKI provides a compelling argument to consider therapy for affected population. However, there is a paucity of data on pregnancy-related AKI in Indian women. The present study to know the incidence of AKI in tertiary care hospitals and also correlate the associated risk factors on retrospective basis. This was a retrospective study conducted at Government tertiary care hospitals of Bangalore, Karnataka. The retrospectively we have obtained the data sets from patients record, inclusion and exclusion criteria rule was applied foe the collection of entire data sets. Total 400 patients were included for the study intervention, aged between 21-39 years, mean age of the patients was 27.52±2.31 years (ODD 2.36);mean gestational age was 31.22 with SD 0.98 weeks (odd 4.77),primipara were seen in 225 (odd 13.36),parity 2 and 3 were distributed 135 and 40 cases respectively. The incidence of dialysis was 2.60%.HELLP syndrome and pre-eclampsia (71.57%;odd 22.52,p=0.001), Postpartum hemorrhage (2.99%,odd odd 0.25,p=0.112), Ectopic pregnancy (1.99%,odd 1.89,p=0.036), Aminiotic fluid embolism (1.24%,odd 0.25 p=0.2213), Pregnancy fatty live (0.49%,odd 0.10 p=0.3662), Peripartum cardiomyopathy (2.49%,odd 11,p=0.8524), Gestational diabetes mellitus(5.48%,odd 10.55 p=0.036), Postpartum retention of urine (1.49% odd 1.36 p=0.158).Mechanical ventilation was done to support 25.5% and inotrpic support was needed by 45.67% patients. The present study concludes that AKI was the most frequent complications of pregency period, which are complications that can be easily identified and treated during the early pregnancy or onset of pregnancy time.

KEYWORDS: *AKI, Acute Kidney Injury, Pregnancy, HELLP Syndrome, Pre-Eclampsia*

INTRODUCTION

According to past literature and Report of Indian Ministry of Health and Family welfare (MOHF),Government of India, maternal mortality rate was 27.09 per 100,0000 live birth in 2011.Acute Kidney Injury is very common during the pregnancy and puerperium. Although, it is related to increased morbidity and mortality rates. The incidence of AKI was found to be declined in mid income and developing countries (1, 2). It is major contributor to poor patient outcomes.AKI

occurs in about 13.30 million people per year, nearly 85% of whoms live in the developing world, and no direct link between AKI and death has yet been shown, AKI is thought to contribute to about 1.7 million deaths every year (3).The course of AKI varies with different geographical set up and the severity of duration of illness, affects outcomes such as dialysis requirements, renal function recovery, and survival. Recognition is increasing for the effect of AKI on patients, the resulting societal burden from its long-term effects, including development of chronic kidney disease and end stage renal disease needing dialysis or transplantation. In Indian perspective many literature revealed that AKI has becomes a rare complication of pregnancy. Since the 1980s, its incidence in Industrialized countries has decreased dramatically because of the disappearance of septic abortion and improved prenatal care.AKI is potentially preventable and treatable with timely intervention, but there continues to be high human burden. Which specific factors account for the poor outcomes and to what extent variations in care delivery contribute are unclear. The ability to provide lifesaving treatments for AKI provides a compelling argument to consider therapy for affected population. However, there is a paucity of data on pregnancy-related AKI in Indian women. The present study to know the incidence of AKI in tertiary care hospitals and also correlate the associated risk factors on retrospective basis.

METHODS

This was a retrospective study conducted at Government tertiary care hospitals of Bangalore, Karnataka. The retrospectively we have obtained the data sets from patients record, inclusion and exclusion criteria rule was applied foe the collection of entire data sets.. The inpatient database contained information on patient's name, age, gender, and diagnosis. Patients who discharged from January 2015 to June 2016 were screened in accordance with the following diagnoses: 1. Pregnancy or puerperium; 2. Acute renal failure, acute renal insufficiency, or acute kidney injury; (In regional language, we use the same character to indicate renal and kidney). A review of complete medical records confirmed the diagnosis of AKI.A total 400 sampled data were extracted from the data base source, a male comprises 250 and female comprised 150 patients respectively. Pregnant complications, co-morbidities and risk factors were extracted from pre tested questionaries.Univariate; 'ANOVA' and logistic regression statistical methods were employed to test the hypothetical results.

Results

Table 1: Basic Information of Patients (N=400)

Parameter	Mean±SD	Odd Ratio	P-Value
Age (years)	27.52±2.31	2.36	0.0012[**]
Gestational weeks upon admission(weeks)	31.22±0.98	4.77	0.0036[**]
Primipara (%)	225	13.36	0.0018[**]
G2	135	10.87	0.0002[**]
G3	40	6.3	0.0036[**]
Blood urea nitrogen (umol/L)	9.12±6.33	2.28	0.0011[**]
Serum creatitine > 221 mmol/L	59(%)	3.96	0.0362[**]

** Significant at 1% level (p<0.01)

Total 400 patients were included for the study intervention, aged between 21-39 years, mean age of the patients was 27.52±2.31 years (ODD 2.36);mean gestational age was 31.22 with SD 0.98 weeks (odd 4.77),primipara were seen in 225 (odd 13.36),parity 2 and 3 were distributed 135 and 40 cases respectively with odd ration 10.87 and 6.3. Haematological parameters were done at greater accuracy mean BUN was 9.12 and serum creatine >221 seen in 59 cases. The parameters were statistically significant at incidence of AKI (p<0.01).AKI is independent risk factors of mortality and

morbidity of the infected cases. General mortality was 6.50% and mortality due to AKI was 19.85% (p=0.0025).In the multivariate analysis, risk factors for AKI were caesarean delivery (95% CI = 0.55-0.89,p=0.0001) AND THROMBOCYTOPENIA (95% CI=2.86-6.33,p=0.0085).AKI was intuitive risk factors for secondary complications as it would be increased mortality and morbidity.

Table 2: Distribution of Pregnant Complications

Parameter	No (%)	Odd ratio	P-value
Pre-eclampisa	287 (71.57%)	22.52	0.0001[**]
Eclampisa	55(13.71%)	15.63	0.0028[*]
HELLP syndrome	3(0.74%)	0.25	0.1125[ns]
Postpartum hemorrhage	12(2.99%)	1.89	0.0362[ns]
Ectopic pregnancy	8(1.99%)	0.96	0.168[ns]
Amniotic fluid embolism	5(1.24%)	0.25	0.2213[ns]
Pregnancy fatty live	2(0.49%)	0.10	0.3622[ns]
Peripartum cardiomyopathy	01(2.49%)	0.11	0.8524[ns]
Gestational diabetes mellitus	22(5.48%)	10.55	0.03655[ns]
Postpartum retention of urine	6(1.49%)	0.79	0.8772[ns]
Co morbidities			
Chronic kidney disease	32(7.98%)	5.5	0.002[*]
Primary heart diseases	08(1.99%)	2.14	0.185[ns]
Obstructive nephropathy	03(0.74%)	1.87	0.263[ns]
Pyelonephritis	07(1.74%)	2.26	0.174[ns]

** Significant at 1% level (p<0.01),ns-non significant

The incidence of dialysis was 2.60%.HELLP syndrome and pre-eclampsia (71.57%;odd 22.52,p=0.001), Postpartum hemorrhage (2.99%,odd odd 0.25,p=0.112), Ectopic pregnancy (1.99%,odd 1.89,p=0.036), Aminiotic fluid embolism (1.24%,odd 0.25 p=0.2213), Pregnancy fatty live (0.49%,odd 0.10 p=0.3662), Peripartum cardiomyopathy (2.49%,odd 11,p=0.8524), Gestational diabetes mellitus(5.48%,odd 10.55 p=0.036), Postpartum retention of urine (1.49% odd 1.36 p=0.158).Mechanical ventilation was done to support 25.5% and inotrpic support was needed by 45.67% patients. According to the RIFLE criteria, majority of the patients fall under risk category followed by injury. 15% of the patients developed end stage renal disease. Co morbidity status was enlisted Chronic kidney disease was seen in 32 cases (7.98%), Primary heart diseases 08 (1.99%), Obstructive nephropathy 03(0.74%) and Pyelonephritis 07 (1.74%) respectively table (2).

DISCUSSIONS

AKI is one of the main conditions associated with high mortality (20%) in poor prognosis in poor resource set up. The pregnancy causes of AKI are common in Indian context (developing countries), but are still an important public health problem in the developing world which reflects the precarious prenatal care. Much literature opined that AKI in critically ill patient has a high prevalence varying from 15-25%, and dialysis is required in around 56% of cases. In pregnancy, AKI is still not well studied, and its determinant factors should be better investigated. It is estimated that AKI occur in 1 out of 20,000 pregnancies in developed countries. In the present study, the main causes of event were pregnancy associated complications, which is accordance with previous studies showing that these are the main complications of pregnancy.AKI occur 1-2% of cases, but only severe AKI was considered. Among the co morbidities found in the present study.pregnency complications is represents the main causes of the maternal mortality in Indian scenario.

CONCLUSIONS

In summary, the study concludes that AKI was the most frequent complications of pregecy period, which are complications that can be easily identified and treated during the early pregnancy or onset of pregnancy time. Population based study would be required for decision making and prevention of AKI in developing countries like India.

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