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Gynaecology

PREGNANCY RELATED ACUTE KIDNEY INJURY -AN ANALYSIS

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ABSTRACT Pregnancy related acute kidney injury(PRAKI) is common in developing countries like India. The aim of the study was to identify the etiology, prognosis, management and to have preventable measures, to improve the maternal and fetal outcome. The study was conducted in Tirunelveli Medical College Hospital – Obstetrics and Gynecology Department from July 2016 to December 2016.A total of 22 cases has been studied. The incidence of PRAKI was 1.3% in our hospital. Pregnancy induced hypertension, pre-eclampsia, eclampsia was found to be commonest cause. Incidence of PRAKI was high in third trimester. The outcome was favorable with complete recovery in 45.47% patients. The low incidence of PRAKI was probably due to improved obstetric practices. Future research is further needed, to decrease the incidence.

KEYWORDS : PRAKI-Pregnancy related acute kidney injury, PIH-Pregnancy induced hypertension, HELLP- Hemolysis, elevated liver enzymes, low platelet count.

INTRODUCTION

Pregnancy related acute kidney injury refers to spectrum of prognosis ranging from potentially preventable to fatal. In developing countries the incidence ranges from 4.2 to 15%. In developed countries, the incidence has decreased to 1% to2.8%. It has decreased after the disappearance of septic abortion and better perinatal care [2,3]. Renal system undergoes anatomical and physiological changes during normal pregnancy (1). Consequently blood urea nitrogen(BUN) and creatinine concentrations are lower than the normal range. Hence a normal(BUN) or creatinine level in pregnant female may indicate underlying renal disease. (2) The common causes are preeclampsia, eclampsia, HELLP syndrome, (3,4) sepsis, abortion, obstetric hemorrhage, acute fatty liver of pregnancy, hemolytic uremic syndrome and thrombotic microangiopathy. Acute tubular necrosis is the common condition associated with good prognosis. The aim of this study is to evaluate the magnitude of PRAKI in TVMCH, to study the contributing factors, outcome, morbidity, mortality and to have appropriate preventive measures.

MATERIALS AND METHODS

The study was conducted in Tirunelveli Medical College Obstetrics and Gynecology Department. Totally 22 patients with AKI were studied. Patients who were healthy previously and developed a urine output of <400ml/day, serum creatinine of >2 mg% were diagnosed to have AKI. Women, with no history of oliguria or renal disease prior to gestation, normal sized kidneys on ultra -sonogram, no history of hypertension or diabetes prior to study and no urological complication were included in the study. Detailed history, clinical examination and investigations were performed in all the patients. Nephrologist opinion was obtained for all the cases and treated accordingly. Hemodialysis or peritoneal dialysis was performed according to standard indications. Maternal outcome was recorded as complete recovery, partial recovery, death. Complete recovery was declared when renal function returned to normal range. Partial recovery, when showed improvement, but did not return to normal even after 12 weeks.

RESULTS: A total of 1600 patients who were admitted in obstetric and gynae department of Tirunelveli medical college were observed from July 2016 to December 2016.22 patients had acute kidney injury. The incidence of AKI in our hospital is 1.3%. Most of the patients were in the age group of 20-30 years with the incidence of 68.18%. 27.27% were in 30-40 years of age and 4.5% were in >40 years of age. In our study 77.28% belong to rural community and 22.72% belong to urban community. Regarding the obstetric code 50% were prime gravid, 22.7% were second gravida,9.09% were third gravida and 18.21% postnatal cases. 59.09% of patients with AKI was in 3rd trimester ,15% in 2nd trimester, 21.37% was in postnatal group and 4.5% in 1st trimester. Pregnancy induced hypertension-eclampsia and eclampsia constitute the major cause of AKI as 45%, obstetric Hemorrhage forms27.27%, sepsis forms 27.27%, TTP, HUS, MTP, HEV+VE-forms 4.54%. Major population was delivered by LSCS -36.36%, Labor Naturalis forms 31.81%, IUD forms 9.09%, abortion forms 4.5%, hysterectomy forms 18.18% . Regarding fetal outcome 57.30% were delivered alive,22.7% were alive while discharging from hospital. 31.81% were expired in Sick neonatal ward.22.7% were intra uterine death and 19.98% were still born.45.45% patients with AKI were on ventilator while treatment.54.55% were without ventilator support.25.28 % underwent hemodialysis, 18.18% underwent peritoneal dialysis, 13.63% underwent both hemodialysis and peritoneal dialysis. 56.54% were under medical treatment. In our present study,45.47% completely recovered, 27.27% partially recovered. Maternal mortality was 22.72%, one patient absconded from hospital 4.54%.

DISCUSSION:

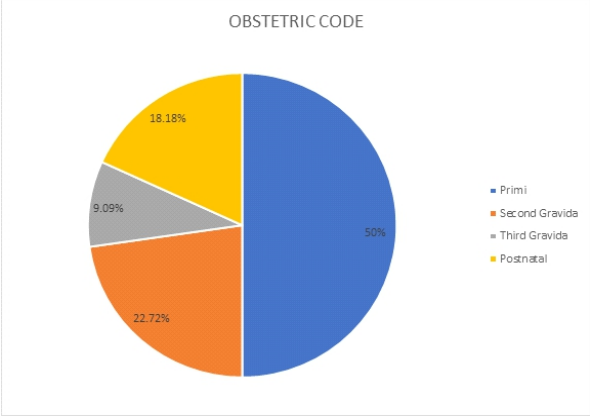
Acute Kidney Injury in pregnancy is a dreadful complication which deteriorates the prognosis of both the mother and the baby. Renal plasma flow increases by 50% to 70% during pregnancy in the first two trimesters (5). Glomerular filtration rate increases from 97ml/min to 128ml/min by the end of first trimester. This results in a lower baseline serum creatinine levels than compared with similarly healthy nonpregnant individuals. Sodium decreases by 3mEq/L, calcium also shows a small decrease. (6) The incidence of AKI in developed countries is 1 -2.8%. In developing countries, it is 9-25%. In our present study, the incidence is 1.3%. This is like other studies (7,8). This decline reflects the decrease in post abortal AKI and better perinatal monitoring (19). The average age of onset is between 20 to 30 years according to various authors (9) which corresponds with our study. In our study 59.09% of patients with AKI were in the third trimester and 18.21% patients were in the postpartum period. Similar results were reported in Pakistan where the incidence was 36% in third trimester (10). Different studies in India showed incidence in postpartum period as 75.6%(11,12). In our study, the main cause of AKI was pregnancy induced hypertension 45%. Preeclampsia as a cause of AKI was identified as 12% in Pakistan (10) and 75.2% in Turkey (13). Septic abortion was a major cause in developing countries but not in our study. Complete recovery was seen in 45.45% in our study. Corresponding results were obtained from Arora et al (14), Gopalini et al (15), Erdemoglu et al showed 42%,54.2%,61% respectively. Maternal mortality was 22.72% in our study. Various studies in India showed maternal mortality of 20%(25,30). In Turkey, the rate was 10.6%(13), Pakistan Khalil et al showed 15%(10), 33.3% in Chaudhry et al (16) and Kumar et al (17).

CONCLUSION

Pregnancy related AKI presents a challenging clinical situation. The major cause of Pregnancy related AKI shifts from sepsis to preeclampsia even in developing countries due to better obstetric care. Prevention of septic abortions, good perinatal care and better management of obstetric complications will bring down the incidence of PRAKI further.

ETIOLOGY OF PRAKI

ETIOLOGY	NUMBER	PERCENTAGE
Pregnancy Induced Hypertension /Pre-eclampsia / eclampsia	9	45.45%
Post-Partum Hemorrhage	2	9.09%
Ante Partum Hemorrhage	4	18.18%
Sepsis	6	27.27%
Hepatitis E Virus	1	4.54%
Thrombotic Thrombocytopenic purpura	1	4.54%
Hemolytic Uremic Syndrome	1	4.54%
Medical termination of Pregnancy	1	4.54%



MATERNAL OUTCOME

OUTCOME	NUMBER	PERCENTAGE
Completely Recovered	10	45.45%
Partially Recovered	6	27.27%
Death	5	22.72%
Absconded	1	5%

REFERENCES:

1. Koetje PM, JJ, Kooman JP, ME, Peeters LL Pregnancy reduces the accuracy of the estimated glomerular filtration rate Cockroft-Gault and MRDR formulas, Reprod Sci.2011;18(5):456-62.
2. Dunlop Davidson JM. Renal hemodynamics and tubular function in human pregnancy. Baillie's Clinical Obstetric Gynaecol.1987;1(4):769-87.
3. Walker JJ. Pre-eclampsia. Lancet 2000; 356:1260-5 [PubMed]
4. Prakash J, Pandey LK, Singh AK, Kar B, Hypertension in pregnancy Hospital based study. J Association of Physicians of India 2006; 54:273-8 [PubMed]
5. M.B. Beaufils, Pregnancy, in clinical nephrology, A.M. Davidson, J.S. Cameron, G.p. Grunfield et al, Eds PP 1704-1728, Oxford University Press, New York, NY USA,3rd edition,2005.
6. Kurzel RB. Serum magnesium levels in pregnancy and preterm labor. Am J Perinatol,1991;8(2):119-27.
7. M.R. Ansari, M.S. Laghari and K. BSolangai, Acute renal failure in pregnancy: One year observational study at Liaquat university Hospital, Hyderabad, Journal of Pakistan medical association, vol.58, no.2, pp. 61-64,2008.
8. V. Sivakumar, Ramakrishna, and V.V. Sai Naresh, "Pregnancy related acute renal failure: a 10-year experience, "Saudi Journal of Kidney Diseases and Transplantation, vol .22, no.2, pp.352-353,2011.
9. Najar MS, Shah AR, Banday KA, Bhat MA et al, Pregnancy related acute Kidney Injury: A single center experience from Kashmir Valley, Indian Journal,2008:18(4):159 -61.
10. M.A. Khalil, A. Azhar, N. Anwar, A. Amin Ulla, Najm -ud-din and R. Walli," Etiology, Maternal and Fetal outcome in 60 cases in obstetric acute renal failure. Journal of Aubyn Medical College., Vole 21, no.4pp.46-49,2009.
11. P.U. Rani and G. Narayen, Anuradha", Changing trends in pregnancy related acute renal failure," Journal of Obstetrics and Gynecology of India, vol.52, pp.36-38,2002.
12. Kilari SK, Chitra RK, Vishnubhotla SK. Pregnancy related Acute Renal Failure. Journal of Obstetrics and Gynaecol. Of India.2006;56.308 -10.
13. M. Erdemoglu, U. Kuyumcuoglu, A. Kale and N. Akdeniz," Pregnancy related acute renal failure in Southeast region of Turkey: analysis of 75 cases s Clinical and Experimental Obstetrics and Gynecology, vol.37, no.2. pp.148-149,2000.
14. N. Arora, K. Mahajan, N. Jana, and Taraphder," Pregnancy related acute renal failure in eastern India," International Journal of Gynecology and Obstetrics" vol 111, no.3, pp.213-216,2010.
15. K.R. Gopalini, P.R. Shah, D.N. Gera et al, "Pregnancy -related acute renal failure: a single center experience, "Indian Journal of Nephrology, vol ,18. no.1.pp17-21,2008.
16. N. Chaudri, G.U. But. I, Masroor et al," Spectrum and short-term outcome of pregnancy related acute renal failure among women, "Annals of Pakistan Institute of Medical Sciences, vol.7, no.2, pp.57-61,2011.
17. Prakash Tripathi Malhotra Kumar Srivastava. Acute renal failure in eastern India. Nephrol Dial Transplant.1995;10.2009-12[PubMed]