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An observational prospective study of clinical profile and obstetrical and neonatal outcome of Pregnancy Related Acute Renal Failure occurred in a tertiary care hospital of Rajasthan

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Abstract: *Objective: To study the clinical profile and obstetricaland neonatal outcome of cases of pregnancy related acute failure (PRARF)failure occurred in a tertiary care hospital of Rajasthan*

Materials and Methods:*All patients with PRARF admitted in S.M.S medical college since July 2009 to July 2010 were analyzed*

Result:*Total no of Acute Renal Failure cases was 60. Age range of cases was 19 years to 40 years, while mean age was 26.2±.56 yrs. In total cases, 61.7% were multipara and remaining 38.3% were primi. In 80% cases deliveries were conducted in hospital remaining 20 % delivered at home. 85%patients have attended antenatal clinic. PRARF was seen in 58.3% cases during post-partum period. During the 3rd trimesternumber of cases was 12(20%) followed by 13.3% and 8.3% in 2nd and 1st trimester. Total number of women with PRARF was 60, whereas, the total number of patients with acute renal failure (ARF) was 1557. The frequency of PRARF was 3.85% of all ARFPallor was present in 93.3% women. Bleeding per vaginum was complained by 46.7% women with acute renal failure. Edema was present in 41.7% cases. Sign of icterus was present in 21.7% cases.*
*Various abnormal laboratory finding were noted among the pregnancy related acute renal failure cases, Anemia were present in 68.3% cases. Electrolyte disbalance were present among 38 (63.3%) of cases. Out of these hyponatremia was the commonest condition, in about 50% cases it was find out. Abnormal liver function test was present in 45% cases. Puerperal sepsis (31.7%) was the most common cause of pregnancy related acute renal failure followed by anti-partumhemorrhage (25%). PET/ Eclampsia were underlying cause among 16.7% cases. Post abortion sepsis was the cause of in 5% cases of pregnancy related acute renal failure. In half of the cases delivery were normal, in 23.4% cases LSCS were performed. D&E done in 15% cases while 5% pregnancy terminated as Abortion.Anuria was present in 21.7 % cases, while 65% suffered from oligouria. Mean creatinine level was 4.5±0.62. Mean duration of oligouria 18.2 ±12 days. Non oligouric condition was present in 8(13.3%) cases. Dialysis was needed in 36(60%) cases, hemodialysis was given to 26 cases, while 6 (10%) were on Peritoneal dialysis and 4(7.5%) on venovenous dialysis.19 cases were completely recovered, 20 cases partially, and remaining 21 died. In 12 cases operative procedure was done, in 8 cases evacuation and in 4 cases hysterectomy was done. As outcome of fetal survival out of total pregnancy 20 died and 40 survived. IUD was most common cause (60%) among fetal death.****Conclusions:****PRARF remains acritical situation in developing countries where sepsis is the most frequent etiology, followedby anti-partum hemorrhage (25%). PET/ Eclampsia were underlying cause among 16.7% cases. Post abortion sepsis was the cause of in 5% cases of pregnancy related acute renal failure. Prevention is the best and least expensive solution*

Keywords*: Pregnancy Related Acute Renal Failure,Acute Renal Failure, Pregnancy*

I. Introduction

Pregnancy –related acute renal failure (PRARF) is potentially life threatening,but largely preventable complication of pregnancy. Recently,a major decrease in its incidence in high- income countries has been attributed to the liberalization of abortion laws and improved obstetric care.[1] In recent years, the incidence of pregnancy related acute kidney injury (PRAKI) has decreased in developed countries to only 1% to 2.8%. It is a rare complication of pregnancy following the disappearance of septic abortion and a better prenatal care.However, PRAKI is still frequent in developing countries;the incidence is around 4.2-15%.[2] The important causes of obstetric acute renal failure are divided into causes in early pregnancy which include septic abortion leading to septic shock and causes in late pregnancy and immediate puerperal are ante partumhemorrhage, postpartum hemorrhage,preeclampsia, eclampsia, HemolyticUremic Syndrome(HUS), puerperal sepsis and HELLP syndrome.[3] Pregnancy - related Acute Renal Failure (ARF) may comprise up to

25% of the referrals to dialysis centers in developing countries and is associated with substantial maternal and fetal mortality.[4]there is marked decline in incidences of pregnancy related acute renal failure (PRARF) 50 years in industrialized countries as a result of improved antenatal care and obstetric practices .In contrast ,it is still a relatively common cause of ARF in developing countries. There are only few studies in our country addressing this issue .It is observed that the frequency of PRARF is on the decline in our country too.[5] We are here with our experience with PRARF from July 2009 to July 2010.Our institute is a tertiary care hospital cum medical college in Jaipur,having referred cases from Rajasthan and its nearby stats like Haryana, Punjab, U.P., Gujarat and M.P. etc.

II. Materials And Methods

All the cases of PRARF admitted in S.M.S. Medical College, betweenJuly 2009 and July 2010 were analyzed.PRARF was diagnosed when there was a sudden oliguria (24 hoursurine output<400ml) or anuria with serum creatinine elevated to 1.5mg%. Those with underlying CRF prior to pregnancy (serum creatinine elevated to 1.5mg %) were excluded from the study.

Exclusion Criteria: Patient with following feature were not included in study;

1. Diagnosed cases of CRF prior to pregnancy.
2. Evidence of renal disease prior to pregnancy (e.g. Glomerulonephritis, renal insufficiency from any cause).
3. History of hypertension and diabetes before gestation.
4. Renal scarring small size kidney on the ultrasound.
5. Elevated serum creatinine prior to gestation.
6. Evidence of renal insufficiency from any cause prior to pregnancy.
7. Preexistinghypertension.
8. Diabetes mellitus.
9. Gestational hypertension
10. History of renal stone disease
11. Small size of kidneys
12. Refusal to cooperate with study

Thus women with no history of oliguria or renal disease prior to gestation, normal size kidneys on ultra sound and no urological complication were included in present study. Detailed history, clinical examination and investigations were performed. Each patient underwent complete obstetric examination and removal of product of conception was performed as and when required .Specific inquiries were conducted regarding the mode of delivery, need for blood transfusion and surgical intervention. Renal biopsy was performed if a patient was oliguric or required dialysis at the end of three weeks .Hemodialysis or peritoneal dialysis was performed according to standard indications. Patient who becomes dialysis dependent with good urine output and renal function were discharged and followed up every fortnight for three months.

III. Results

Total no of Acute Renal Failure cases was 60 admitted at Nephrology Department of S.M.S. Medical College Jaipur Rajasthan. The age range of cases was 19 years to 40 years, while mean age was 26.2±.56 yrs. In total cases, 61.7% were multipara and remaining 38.3% were primi. In 80% cases deliveries were conducted in hospital, remaining 20 % delivered at home. In 85% cases H/O of ANC was present. PRARF was seen in 58.3% cases during post-partum period. During the 3rd trimesternumber of cases was 12(20%) followed by 13.3% and 8.3% in 2nd and 1st trimester.Total number of women with PRARF was 60, whereas the total number of patients with acute renal failure (ARF) was 1557. The frequency of PRARF was 3.85% of all ARF

In half of the cases delivery were normal, in 23.4% cases LSCS were performed. D&E done in 15% cases while 5% pregnancy terminated as Abortion.

Figure1

1st Trimester	5	8.3%
2nd trimester	8	13.3%
3rd trimester	12	20%
Puerperal	35	58.3%

Time of occurrence of PRARF:

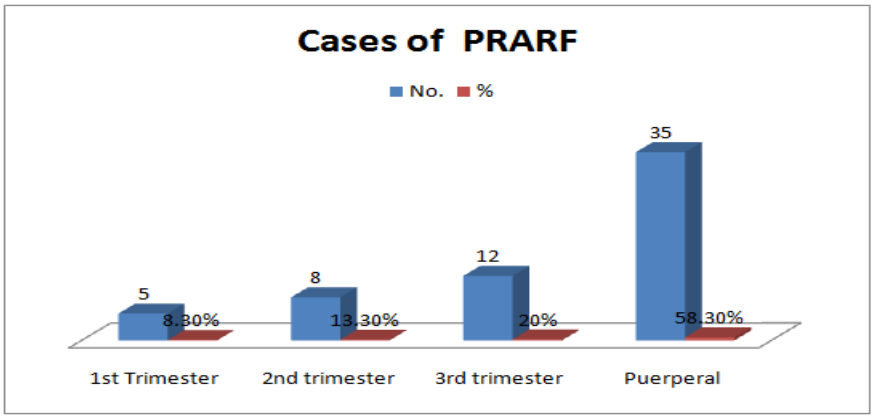


Table 1.Sign and symptoms in pregnancy related acute renal failure cases:

Sign and symptoms		
	Absent	Present
Fever	45(75%)	15(25%)
Edema	35(58.3%)	25(41.7%)
Bleeding per vaginum	32(53.3%)	28(46.7%)
Dyspnea	44(73.3%)	16(26.7%)
Convulsion	53(88.3%)	7(11.7%)
Unconsciousness	50(83.3%)	10(16.7%)
Pallor	4(6.7%)	56(93.3%)
Icterus	47(78.3%)	13(21.7%)

Pallor was present in 93.3% women. Bleeding per vaginum was complained by 46.7% women with acute renal failure. Edema was present in 41.7% cases. Sign of icterus was present in 21.7% cases.

Table 2.Cause of pregnancy related acute renal failure

Contributing factor	Absent	Present
APH	45	15(25%)
Post abortion sepsis	57	3(5%)
PPH	54	6(10%)
PET/Eclampsia	50	10(16.7%)
Puerperal sepsis	41	19(31.7%)

Sepsis was the most common(36.7%) cause of pregnancy related acute renal failure, in which Puerperal sepsis counts about 31.7% cases ,postabortal sepsis counts about in 3% cases .Second most common cause of pregnancy related acute renal failure was hemorrhage,in which anti partum hemorrhage 25% and postpartum hemorrhage 6%cases. PET/ Eclampsia were underlying cause among 16.7% cases.

Table 3.Abnormal laboratory findings in pregnancy related acute renal failure Cases:

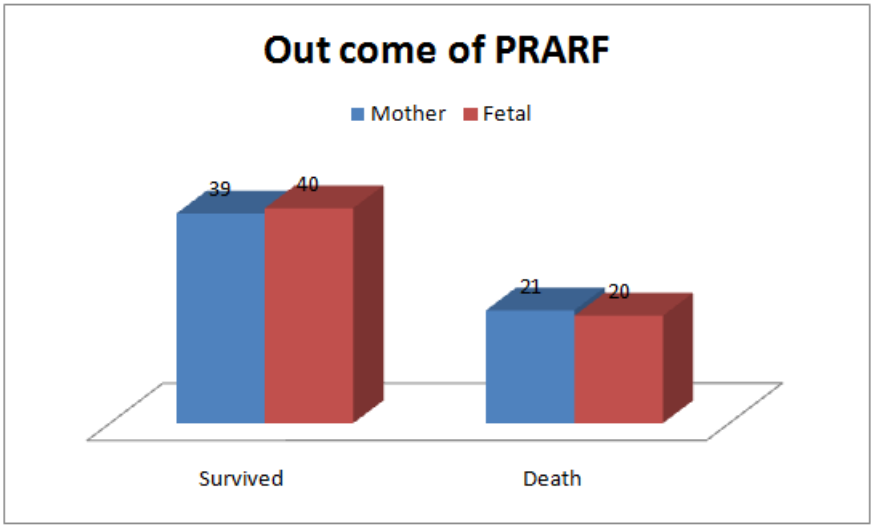
Laboratory findings	No. of cases	% of cases
Hyperkalamia	5	8.3
Hypokalamia	2	3.3
Hypernatremia	1	1.7
Hyponatremia	30	50
Thrombocytopenia	35	58.3
Leukocytosis	37	61.7
Anemia	41	68.3
Abnormal Liver function test	27	45

Various abnormal laboratory finding were noted among the pregnancy related acute renal failure cases, Anemia were present in 68.3% cases. , Leukocytosis in 61.7% and Thrombocytopenia in 36.59% Electrolyte disbalance were present among 38 (63.3%) of cases. Out of these hyponatremia was the commonest condition in about 50% cases it was find out followed by hyperkalamia in 8.3% cases, hypokalemia in 3.3% cases and hypernatrimia in 1.7% cases. Abnormal liver function test was present in 45% cases.

Table 4: Maternal and fetal outcome

	Alive	Expired
Mother	39 (65%)	21 (35%)
Fetal	40 (66.7)	20 (32.3%)

Figure 2: Maternal and fetal outcome.



19 cases were completely recovered, 20 cases partially, and remaining 21 died. In 12 cases operative procedure was done, in 8 cases evacuation and in 4 cases hysterectomy was done. As outcome of fetal survival out of total pregnancy 20 died and 40 survived. IUD was most common cause (60%) among fetal death

Table no 5: Causes of maternal death

SEPSIS + DIC	5
SEPSIS + DIC / IUD	3
SEPSIS + PULM EDEMA	2
SEPTICEMIC SHOCK	4
SEPTICEMIC SHOCK / IUD	3
SEPTICEMIC SHOCK + ARDS	2
SEPTICEMIC SHOCK + DIC / IUD	2

Anuria was present in 21.7 % cases, while 65% suffered from oligouria. Mean creatinine level was 4.5±0.62. Mean duration of oligouria 18.2 ±12 days. Non oligouric condition was present in 8(13.3%) cases. Dialysis was needed in 36(60%) cases, hemodialysis was given to 26 cases, while 6 (10%) were on Peritoneal dialysis and 4(7.5%) on venovenous dialysis.

IV. Discussion

PRARF is a serious complication involving the prognosis of mother and the child. Its specific patho-physiology is strongly related to the physiological and hormonal changes occurring in pregnancy. The PRARF has become a rare complication of pregnancy in developed countries .For example, in France, the incidences of Acute Kidney Injury in pregnancy has decreased from 40% IN 1966 to 4.5% in 1978. This striking decline reflects the decrease of post abortion ARF the better perinatal monitoring .On the other hand,PRAKI is still common during pregnancy in developing countries,being responsible for a high maternal and fetal morbidity.(2)

The incidence of pregnancy related ARF in developed countries is 1-2.8%. In developing countries ,the incidences still remain at 9-25%,mostly due to late referral of pregnancy related complications.(4). PRARF may compriseup to 25% of the referrals to dialysis centers in developing countries and is associated with substantial maternal and fetal mortality. (4)In our country the rate of ARF related to the septic abortion had reduced from 33.3% to 1.8% in last 20 years.(7) The high prevalence of anemia(68.3%)among even married women of reproductive age in India could compromise their ability to tolerate hemorrhage /sepsis during abortion and.However,lack of prenatal care in India is more than a medical problem because associated sociocultural,economic,and geographic barriers often prevent women from receiving appropriate obstetric care.(1)

Sepsis was the most common(36.7%) cause of pregnancy related acute renal failure, in which Puerperal sepsis counts about 31.7% cases ,postabortal sepsis counts about in 3% cases .Second most common cause of pregnancy related acute renal failure was hemorrhage,in which anti partum hemorrhage 25% and postpartum hemorrhage 6%cases. PET/ Eclampsia were underlying cause among 16.7% cases.

Puerperal sepsis was the most common cause of PRARF in our study (36.7%) well supported by KilariSunil Kumar study [(5)](39.02%),K.R. Goplani et al study [(7)] (61.42%).In contrary to our study LutfullahAltintepe etal [(6)]reported 2.6%cases, NaushabaRizwanet al[(3)]reported 11.42% cases of sepsis.IrfanHssan et alstudy [(4)] shows 27.9 % cases due to sepsis.

Haemorrhage is the second most common cause of PRARF (31%)in our study, inIrfanHssanet al study[(4)](58.1%)cases were due to haemorrhage and in NaushabaRizwan et al study[(3)] (57.13%)cases were due to haemorrhage. These two study shows haemorrhage is the most common cause of PRARF. In LutfullahAltintepe et al[(6)]haemorrhage was seen in 33% cases .

In contrary NaliniArora et al[(1)](53.3%) and Mohamed Arrayhni et al[(2)] (66.6%) studyLutfullahAltintepe et al [(6)] (44 %) shows pre-eclampsia /eclampsia remains the most common cause of PRARF. In our study it is 16.7% similarly toNaushabaRizwan et al study [(3)]17.14%, NaliniArora et al study[(1)] 15% and IrfanHssan et al study[(4)] 11.67%. Kilari Sunil Kumar study [(5)] shows 24.39% cases.K.R.Goplani et al. study [(7)]28.57%cases.

V. Conclusion

PRARF remains a critical situation in developing countries where Puerperal sepsis (31.7%) was the most common cause of pregnancy related acute renal failure followed by anti-partumhemorrhage (25%). PET/ Eclampsia were underlying cause among 16.7% cases. Post abortion sepsis was the cause of in 5% cases of pregnancy related acute renal failure. Prevention is the best and least expensive solution. Preventingsepsis, agood antenatal care and abetter management of obstetrical complications are the crucial tools to implement this purpose.

References

[1]. NaliniArora, KirtiMahajan, Narayan Java, AbhijitTaraphder : Pregnancy –Related Acute Renal Failure In Eastern India Int J Of Gynae&Obstet 111 (2010) 213 -216.
[2]. Mohamed Arrayhani,RandaEiYoubi , And TarikSqalli :Prenancy –Related Acute Kidney Injury:Experience Of The Nephrology Unit At The University Hospital Of Fez ,Morocco:Isrn Nephrology Volume 2013(2013),Article Id 109034,5 Pages.
[3]. Rizwan,SyedFarhanUddin Obstetrical Acute Renal Failure:A Challenging Medical Complication .J Ayub Med CollAbottabad 2011;23(4).
[4]. Irfan Hassan ,Abdul MananJunejo And AnoharLalDawani ; Etiology And Outcome Of Acute Renal Failure In Pregnancy.Journal Of The College Of Physician And Surgeons Pakistan 2009,Vol.19:714-717.
[5]. Kilari Sunil Kumar,Chinta Rama Krishana, Vishanubhotla Siva Kumar :Pregnancy Related Acute Renal Failure J ObstetGynecol India Vol.56 ,No.4:July/August 2006 Pg 308-310
[6]. LutfullahAltintepe,KazimGezginc, H.ZekiTonbul ,Cetin Celik, Ibrahim Guney,S.TulinGezginc,Suleyman Turk ;Etiology And Prognosis In 36 Acute Renal Failure Cases Related To Pregnancy In Central Anatolia . Eur J Gen Med 2005 ; 2(3):110_113
[7]. Kr Goplani ,Pr Shah ,Dn Gera ,M Gumber ,M Dabhi ,A Feroz ,Kanodia,S Suresh, A V Vanikar,HlTrivedi: Pregnancy –Related Acute Renal Failure :A Single –Center Experience. Indian J Nephrol2008;18:17_21
[8]. Sagheb Mm, Ghotbi ,Moini M : Peripartum Acute Renal Failure .Shiraz E-Medical Journal ,Vol.9, No.1, January 2008.
[9]. N. K. Krane ,Md : Acute Renal Failure In Pregnancy.Nefrologia. Vol.Xii. Supl. 1992
[10]. Abdulkareem O .Alsuwaida:Challenges In Diagnosis And Treatment Of Acute Kidney Injury During Pregnancy. Nephro _UrolMon.2011; 4(1):340-344.