

Changing Trends in Pregnancy Related Acute Renal Failure

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Summary

A total of Eighty two cases of pregnancy related acute renal failure (PR ARF) admitted in the dept. of Nephrology, Osmania general hospital, Hyderabad during 1993 to 1997 were analysed and compared with the previous analysis of 101 cases between 1982 to 1991 from the same centre. The overall incidence of PR ARF has decreased from 20.3% to 12.2%. There is a decline in incidence of ARF due to antepartum hemorrhage from 40.6% to 9.8%, puerpal sepsis from 7.9% to 1.2% and post-abortal causes from 14.9% to 9.8%. On the contrary, there is a significant increase in the incidence of hypertensive disorders of pregnancy from 17.8% to 43.9%, contributing to persistently high maternal mortality (23.2%) and perinatal mortality (53.7%). The alarming increase in HTN disorders of pregnancy as a cause of PR-ARF, calls for identification of high risk groups, prevention and effective management of it in order to bring down the incidence of PR ARF in developing countries as well.

Introduction

Pregnancy related acute renal failure (PR ARF) although a preventable condition, is a challenging problem to Internists, Nephrologists and Obstetricians. In the developed countries, the incidence of PR ARF has decreased from 1 in 8000 gestations in 1960s to 1 in 20,000 or less presently, giving a feeling of actual disappearance of the entity' for the Nephrologists. Unfortunately, these reassuring statistics do not apply to developing countries where PR ARF may comprise upto 25% of referrals to dialysis centres and is associated with substantial maternal morbidity and mortality.

Aim: The aim of this retrospective study was to evaluate and compare the changing trends in the incidence, clinical presentation, maternal morbidity, mortality and fetal outcome in cases of pregnancy related acute renal failure in two different time periods.

Methods & Materials

Eighty two cases of PR ARF out of 671 cases of acute renal failure of varied aetiology, admitted in the department of Nephrology, Osmania General Hospital, Hyderabad, in a period of five years, i.e. between January 1993 to December 1997 were analysed and compared with a previous analysis of 101 cases of PR-ARF between 1982 to 1991 in the same centre. This study included all pregnancy related cases with serum creatinine levels of > 2.5mgs with or without anuria. All patients received primary supportive care at a peripheral hospital before being referred for specific therapy. After admission, a detailed history, physical examination, hematological workup, liver function tests, renal function tests were done. Patients with underlying obstructive renal causes were excluded. Depending upon the indication patients were managed with appropriate supportive care and dialysis. Renal biopsy was done in patients with delay

in recovery.

Results

PR ARF accounted for 12.2% of all ARFs during the period 1993-97 (Table I). The peak incidence was between 21-25 years with a mean age of 24 yrs. 34.1% of the patients presented in late pregnancy and 39% in early post-partum period. About 1/3rd of pts. were primigravidae correlating with HTN disorders of pregnancy, which was the commonest primary cause. The incidence of jaundice was found to be 26.8%. While 28% were treated conservatively, 72% required dialytic support in the form of peritoneal dialysis or hemodialysis depending upon the clinical situation. The maternal mortality rate was 23.2% with 69.5% recovered completely and 7.3% with partial recovery of their renal functions had biopsy proven patchy cortical necrosis. The perinatal mortality rate was 53.7% (Table III). Comparison of this data with the previous analysis of 101 cases PR-ARF between 1982-1991 from the same centre showed a statistically significant decrease in the overall incidence of PR-ARF and a significant change in causes of PR-ARF with HTN disorders of pregnancy being the commonest cause during 1993-97, as against antepartum hemorrhage which was the commonest

cause during 1982-91 (Table IV).

Table I

Period of study	: Jan. 1993 – Dec. 1997
No. of Nephrology admissions	: 3394
No. of ARFs	: 671
No. of PR-ARFs	: 82 (12.2%)

Table II

Primary causes of PR ARF

	No	%
1. HTN disorders of pregnancy	36	43.9
Pre eclampsia	14	17.0
Eclampsia	15	18.3
Superimposed pre eclampsia	3	3.7
Renal disease	4	4.9
2. Infective Hepatitis	12	14.6
3. Post partum hemorrhage	10	12.2
4. Antepartum hemorrhage	8	9.8
5. Post abortal	8	9.8
6. Idiopathic postpartum ARF	3	3.7
7. Acute gastroenteritis	3	3.7
8. Puerperal sepsis	1	1.2
9. Mismatched blood transfusion	1	1.2

Table III

Maternal & fetal outcome:

	Complete recovery	Partial recovery	Maternal Deaths	Live births	Stillbirths	Abortions
HTN disorders of pregnancy	24	3	9	7	25	4
Hepatitis in pregnancy	9	-	3	3	7	2
Post abortal	6	1	1	-	-	8
Postpartum haemorrhage	8	-	2	8	2	-
Antepartum haemorrhage	6	2	-	-	8	-
Puerperal sepsis	1	-	-	1	-	-
Idiopathic post partum ARF	1	-	2	2	1	-
Miscellaneous	2	-	2	2	1	1
	57 (69.5%)	6 (7.3%)	19 (23.2%)	23 (28.0%)	44 (53.7%)	15 (18.3%)

Table IV

Comparitive Data

	1982-91 (%)	1993-97 (%)	p-value
Incidence	20.3	12.2	< 0.001
Primigravidae	19.8	36.6	< 0.05
Causes			
HTN disorders of pregnancy	17.8	43.9	< 0.001
APH	40.6	9.8	< 0.001
Post abortal causes	14.9	9.8	> 0.1
Jaundice in pregnancy	5.0	14.6	0.1 > p < 0.05
Maternal mortality	10.9	23.2	< 0.05
Perinatal mortality	51.5	53.7	> 0.1

Discussion

This series of severe obstetric Acute renal failure treated at a single centre confirms that PR ARF, although showing a downward trend, still continues to be a common cause of ARF. There is a statistically significant decrease in the overall incidence of PR ARF from 20.3% during 1982-91 to 12.2% during 1993-97. Chugh et al in their series showed a similar downward trend from 22% (1965-74) to 9% (1981-86). This downward trend in developing countries is possibly related to better antenatal care, improvement in resuscitation of obstetric hemorrhage and safemotherhood practices. The impact of all these factors is shown by the radical change in the incidence of PR-ARF in the developed countries. While in Britain, the incidence has decreased from 1 in 5000 pregnancies in 1950s (Kerr & Elliot, 1963) to no cases observed in approximately 30000 deliveries at Leeds from 1980-87 despite being a referral centre and from Italy Stratta et al (1996) have shown a decrease in the incidence from 40% (1956-57) to 0.5% (1988-94).

Among the primary causes of PR ARF, HTN disorders of pregnancy emerged as the commonest cause (43.9%) during 1993-97, as against antepartum haemorrhage which was the commonest cause (40.6%) during 1982-91. The incidence of post abortal ARF has decreased from 14.9% to 9.8%. A similar decline from 13% to 3.5% was observed in the series by Chugh et al (1989). Legalisation of abortion in India has led to this fall. Similarly, improvement in operative techniques, availability of potent antibiotics, trained dais or midwives for conducting safe deliveries and overall improvement in obstetric care have led to a reduction in the incidence of antepartum hemorrhage from 40.6% to 9.8%, postpartum hemorrhage from 15.5% to 12.2% and puerperal sepsis from 7.1% to 1.2% as the causes of acute renal failure in our study. Chugh et al (1989) in their series have shown a reduction of > 50% in the incidence of ARF secondary to hemorrhage and sepsis. While the oliguric phase was relatively short in the majority of

cases who survived, 7.3% with prolonged oliguria and partial recovery had biopsy proven acute cortical necrosis. The high maternal and perinatal mortality rates reflect the change in the primary cause of PR ARF. The observation of increase in the incidence of associated jaundice with renal failure calls for obstetricians to suspect and screen for HELLP syndrome during pregnancy, so that the morbidity and mortality can be brought down, as 20% of HELLP syndrome is associated with ARF.

Conclusions

This analysis of PR ARF represents only a tip of an ice berg, most of the cases in remote areas going unrecognized and untreated. It is still a critical occurrence associated with serious prognosis for mother and child. Although showing a downward trend, it still continues to be a common cause of ARF. The sharp decline in incidence of ARF due to antepartum haemorrhage and puerperal sepsis could possibly be related to better obstetric care. The alarming increase in the incidence of HTN disorders of pregnancy as a cause of PR ARF with its attendant high maternal and perinatal mortality, calls for identification of high risk groups, prevention of HTN, early recognition and effective management. This would not only bring down the incidence and its associated morbidity and mortality, but could ultimately lead to disappearance of PR ARF in developing countries as well.

References

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