A study of 25 cases of acute renal failure in obstetrics

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Summary: **Twenty five patients with acute renal failure in obstetrics were studied over a period of 2½ years. The incidence of this condition in our hospital was 1:617. The common causes were abruptio placentae, PIH, septicaemia, and DIC. Oliguria was the commonest mode of presentation.**

Haemodialysis was done in 8 patients. The maternal mortality observed with this condition was 35%. The important cause of death being uraemia, hyperkalaemia, septicaemia and liver dysfunction.

Introduction

Acute renal failure in obstetrics encompasses a diverse group of clinical states, associated with acute suppression of renal function, clinically manifested by oligo-anuria. Although incidence of renal failure associated with pregnancy has decreased over the last decade in developed countries due to improved obstetric, care and liberalisation of abortion laws, prevalence of this condition is still high in developing countries like India. This is mainly due to poor socio-economic conditions, limited medical resources and unavailability of good obstetric and MTP facilities to our population. The severity of the condition is further increased by late referrals leading to higher morbidity and mortality associated with this condition.

Material and methods

A retrospective analysis of 25 cases of acute renal failure in obstetrics over a 2½ year period from January 1994 to June 1996 was undertaken at our institute. The data was analysed with respect to age, parity, etiological factors, clinical presentation, mode of management and prognosis. Possible preventable factors and measures to decrease morbidity and mortality related to this condition were discussed.

Observation and results

During the period of this study there were 15417 obstetric admissions. 25 cases were of proved acute renal failure, the incidence being 1:617. This incidence being much higher than 1 : 14000 to 1 : 5000 as reported in literature. (Chhabra 1991, Chugh 1976, Jaiprakash 1985).

In all 13 patients were transferred as emergency cases and 12 patients were registered antenatally.

Majority of our patients were between 25-30 years of age. There were 5 primigravidae 6 second gravidae, while the rest of them were gravida 3 or above.

The common causes in our study were abruptio placentae, preclampsia, eclampsia (PIH), septicaemia, and DIC. There was one case of snake bite, and two were drug induced. (Table I)

Table I

Aetiological factors	Number	Percentage
Abruptio Placentae	7	28%
Preeclampsia	2	8%
Eclampsia	3	12%
DIC	3	16%
Septicaemia	4	16%
PPH	2	8%
Ectopic pregnancy	1	4%
Iatrogenic	1	4%
Drug Induced	1	4%
Snake bite poisoning	1	4%

Most of the patients were of renal type, 6 pre renal type,

while there was only 1 case of post renal azotaemia which resulted from accidental bilateral ureteric ligation during an obstetric hysterectomy for septic abortion (Table II).

Table II

Type	Number	Percentage
Pre renal	6	24%
Renal	18	72%
Post renal	1	4%

Table III

Presentation	Number	Percentage
Oliguria	17	68%
Oligo-anuria	5	20%
Anuria	1	4%
non oliguric	2	8%

Table III shows different forms of clinical presentations, with oliguria being the commonest. There were 2 cases of acute renal of the non oliguric type. The mean duration of the oliguria - anuria before onset of diuretic phase varied from 4 - 8 days. If oliguria - anuria lasted for more than 3 weeks, a percutaneous ultrasound guided renal biopsy was taken for histopathology. Of the 7 biopsies taken, 4 were reported as acute tubular necrosis, 2 renal cortical necrosis. 2 of these 3 patients of cortical necrosis later on died of septicaemia, while 1 developed chronic renal failure. Interestingly one case was also diagnosed as postpartum haemolytic uraemic syndrome.

All patients to start with received conservative medical treatment to treat uraemia and infection. Proper replacement of fluids and blood with strict monitoring of central venous pressure followed by frusemide injection (up to 200 mg 4 times a day) was given. Strict monitoring of input and output was maintained.

Apart from investigations as BUN, S. creatinine, uric acid, and electrolytes (Na+, K+, measurement of urinary sodium and ratio of urinary and serum creatinine were undertaken, which was helpful in differentiating the types of renal failure.

Treatment of the cause was undertaken when possible. Early delivery in accidental haemorrhage and eclampsia was favoured.

Indication for dialysis included clinical pointers such as pulmonary congestion, pericardial rub, altered sensorium, investigative parameters such as BUN 80 - 100mg%, creatinine >8.0mg% and potassium >6.5 mEq/L. Patients were displayed routinely on haemodialysis, as and when indicated on an emergency basis, by peritoneal dialysis. The number of dialyses per patient varied between 2 - 8. Dialysis was done on alternate days till they passed into the diuretic phase. Proper fluid replacement and monitoring was also done in the diuretic phase. Table IV shows 12 patients (48%) recovered with conservative management, 3 required peritoneal dialysis, while 8 patients underwent a haemodialysis.

Table IV

Management	**Number**	**Percentage**
Conservative treatment	12	48%
Peritoneal dialysis	3	12%
Haemodialysis	8	32%
Peritoneal dialysis + Haemodialysis	2	4%

Two patients required peritoneal dialysis followed by haemodialysis.

Two patients required obstetric hysterectomy, 1 for septic abortion, and 1 for couvelaire uterus.

Nephrostomy followed by ureteric reanastomoses was done in a patient of post renal failure.

Two patients with hepato-renal failure admitted in critical condition succumbed before any definitive steps could be taken. Apart from these 2 patients there were 3 deaths, the mortality rate was therefore 25%. One patient died during haemodialysis. The significant causes of death

were uraemia, hyperkalaemia, liver failure, DIC and septicaemia.

In the remaining 20 patients, 16 recovered completely passing into the diuretic phase with near normal BUN and creatinine values; 4 patients had chronic renal failure with persistently high BUN values at the time of discharge.

Discussion

Renal failure associated with pregnancy, though uncommon is an important, yet preventable cause of material morbidity and occasional mortality.

Prevalence of acute renal failure in obstetrics generally show bimodal distribution, the first peak at 10-16 weeks of gestation and the second peak late in pregnancy at 33 - 40 weeks period of gestation. In developed countries the first peak is related to septic abortions and related causes which has diminished considerably following liberalised abortion laws (Chhabra 1991). In India, despite the MTP Act, the initial peak persists. Our study showed a bimodal peak prevalence with 36% of the cases between 8 -16 weeks and 48% cases between 34 - 40 weeks period of gestation.

Acute renal failure has a wide spectrum of etiological factors in obstetrics, Jaiprakash in 1985 reported causes of ARF to severe blood loss (65%), septicaemia (25%) and toxaemia (15%) which is comparable with our study. Smith (1968) found a high incidence of ARF following abortions, but in our study 36% cases occurred followed abortions.

Idiopathic haemolytic uraemic syndrome is a special entity occurring in the post partum period and is characterised by rapidly developing renal failure with micro angiopathic haemolytic anaemia. (Segonds 1979). We came across only one cause of classical idiopathic haemolytic uraemic syndrome, which was proved by renal biopsy later on. In our study the commonest causes were abruptio placentae and septicaemia.

Acute tubular necrosis is predominant lesion in obstetric renal failure as compared to cortical necrosis. This was true in our series as reported by Herkins (1974), Jaiprakash (1985).

It is evident that majority of the factors leading to ARF are preventable and avoidable. The prevalence and severity of ARF can be greatly minimised by effective management like timely delivery in cases of accidental haemorrhage and PIH, prompt replacement of blood and fluid in cases of haemorrhage, effective use of antibiotics to prevent septicaemia in cases of septic abortion and puerperal sepsis and a close watch in all such cases of renal function. Furthermore, availability of proper MTP facilities to the population can greatly reduce incidence of septic and criminal abortions and related acute renal failure.

With modern technique of management in specialised units with peritoneal and haemodialysis, maternal morbidity and mortality can be greatly reduced. In our series maternal mortality was 26.8% which is less than 33% and 53% reported by Chhabra (1991) and Chugh at al (1976).

Nowadays deaths are mainly due to infection, liver dysfunction (hepatorenal failure) or an underlying renal disease. Death as a direct result of renal failure is less common, avoidable in majority of cases.

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