

Correlation of Obstetrical Renal Failure with Maternal Outcome in Patients with Placental Abruption

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ABSTRACT

Objectives: To determine the frequency of obstetrical renal failure and its correlation with maternal outcome in patients with placental abruption.

Patients and methods: The cross section study was carried out at the Department of Obstetrics and Gynecology, Lady Reading Hospital Peshawar for a period of one year from 1st July 2011 to 30th June 2012. Sample size was 100 patients. The study population included all cases presenting with ante partum hemorrhage to the Department of Obstetrics and Gynecology.

Results: This study included 100 patients of placental abruption with Ages ranged from 18 to 45 with a mean age of 31.55±6.21 years. The parity distribution showed 90 patients (90%) having multiparity. The gestational ages ranged from 28 to 40weeks with a mean of 33.81±3.64 weeks. Distribution of gestational ages showed 44 cases (44%) in the term group, while 56 cases (56%) in the preterm group. There were 7 maternal deaths, showing case fatality rate of 7%. Haemoglobin levels of mothers ranged from 4.0-11.0 gm/dl, with a mean of 7.9±1.1gm/dl. The correlation between maternal outcome and renal failure due to placental abruption was statistically significant with P-value of 0.002.

Conclusion: Obstetrical renal failure due to placental abruption leading to maternal mortality is an alarming scenario that can only be prevented by provision of multidisciplinary approach considering maternal and fetal complications and timely involvement.

Keywords: Obstetrical renal failure, placental abruption, maternal mortality, perinatal mortality

INTRODUCTION

Abruptio placentae is uterine bleeding from the premature separation of the normally sited placenta after 20 weeks of gestation^{1,2}. Abruptio placentae remains a major cause of maternal and perinatal morbidity and mortality globally, though of most serious concern in the developing world. It is a high risk situation not only for the mother but also is a significant cause of perinatal loss³. The maternal consequences are secondary to the severity of placental abruption.⁴ In the developed world, the frequency has been reported from 0.43% to 1.8%². In Pakistan, it ranges from 2.2% to 7%¹. Maternal complications include hemorrhagic shock, disseminated intravascular coagulation, renal failure, ischemic necrosis of distal organs e.g., hepatic, adrenal and pituitary, uterine apoplexy or Couvelaire uterus leading to postpartum hemorrhage⁵. Acute renal failure (ARF) is a common complication in patients with placental abruptions, which is associated with high mortality and has a separate independent effect on the risk of death^{6,7}. In Confidential Enquiry into Maternal and Child Health (CEMACH) study conducted in the UK (2003-2005), two maternal deaths were caused by placental abruption although severe hemorrhage is usually the major cause of other complication that leads to

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mortality⁸. Abruptio placentae is very frequently seen in our population, however local work on this important condition of pregnancy is very sparse. Few studies have reported maternal and fetal morbidity and mortality associated with this condition. No work has been done on abruptio placentae in relation to renal failure and maternal mortality in our setup. In a study done in Peshawar 2006, obstetrical acute renal failure occurred in 8% of patients with antepartum hemorrhage⁹. This study was taken up with the objective to determine the impact of obstetrical renal failure with maternal outcome in patients with placental abruption. The data generated will help to improve maternal morbidity and mortality by planning prompt management of future cases of placental abruption.

PATIENTS AND METHODS

The study was carried out at the Department of Obstetrics and Gynecology for a period of one year from 1st July 2011 to 30th June 2012. This study included 100 patients, using WHO sample size calculator with 2 percent as reference of renal failure in placental abruption. The study population included all cases presenting with ante partum haemorrhage to the Department of Obstetrics and Gynecology during the study period. This study was cross sectional in which non probability consecutive sampling technique was adopted. Subjects selected for the study were all cases diagnosed as having abruptio placentae. All study subjects underwent a

complete obstetrical clinical workup including history, general physical examination, abdominal and pelvic examination. Relevant investigations such as laboratory tests and imaging were performed. Patients were managed according to maternal and fetal condition. Any maternal complications were noted and recorded. The collected data was entered in SPSS 17 for analysis frequencies, means and standard deviations. The Chi square was used for significance testing as required for qualitative data; a $p \leq 0.05$ was considered significant.

RESULTS

This study included 100 patients of placental abruption. Ages of patients ranged from 18 to 45 with a mean age of 31.55 ± 6.21 years. According to parity, 10 patients (10%) having parity 0 (primigravida), 90 patients (90%) having multiparity (Table 1). The gestational ages ranged from 28 to 40 weeks with a mean of 33.81 ± 3.64 weeks. There were 44 cases (44%) in the term group, while 56 cases (56%) in the preterm group (Table 2). There were 7 maternal deaths, showing case fatality rate of 7% (Table 3). Haemoglobin levels of mothers ranged from 4.0-11.0 gm/dl, with a mean of 7.9 ± 1.1 gm/dl. The haemoglobin distribution showed 80(80%) cases in the 4.0-10.0 gm/dl group, and only 20(20%) cases in the 10.1-13.0gm/dl group (Table 4). The correlation between obstetrical renal failure and maternal outcome in patients with placental abruption is statistically significant with p value of 0.002 (Table 5).

Table 1: Frequency of parity of patients (n = 100)

Parity	No.	%
Primigravida	10	10
Multigravida	90	90

Table 2: Frequency of gestational age of patients

Gestational age	No.	%
Term 37 weeks	44	44.0
Preterm below 37 weeks	56	56.0

Table 3: Frequency of maternal deaths

Maternal outcome	No.	%
Alive	93	93.0
Expired	7	7.0

Table 4: Frequency of level of hemoglobin (n = 100)

Level of Hemoglobin	No.	%
4.0 – 10.0 mg/dl	80	80
10.1 – 13.0 mg/dl	20	20

Table 5: Correlation between obstetrical renal failure and maternal outcome

Renal failure due to placental abruption	Maternal outcome			
	Alive		Expired	
Present	18	18.0	7	7.0
Absent	75	75.0	-	-

$P < 0.002$ (Significant)

DISCUSSION

The results of the present study indicate that Abruptio placenta was associated with a high frequency of maternal mortality. The major maternal morbidity was severe to moderate anaemia and renal failure. Multiparity has been a factor predisposing to increased frequency of abruptio placentae. Thus the present study would tend to support multiparity as a risk factor for abruptio placentae as depicted in earlier studies^{10,11}. Preterm deliveries were 56%, comparable to study done by Bibi et al¹² and Leung et al¹³ showed that prematurity is one of the leading cause of poor perinatal outcome in placental abruption. Maternal mortality rate of 7% is comparable with study done in Peshawar 2006, which was 9% in patients suffering from obstetrical renal failure¹⁴. Almost all patients had anaemia, with haemoglobin levels of severe to moderate anaemia. This high frequency of maternal anaemia is reflective not only of the bleeding of abruptio placentae but also underlying chronic maternal nutritional deficit that aggravates the condition. Anemic patients are prone to develop hemorrhage and its complications. The result of the present study is comparable with studies¹⁵⁻¹⁸. Correlation between obstetrical renal failure and maternal mortality is statistically significant. In a study done in Peshawar 2006, obstetrical acute renal failure occurred in 8% of patients with antepartum hemorrhage¹⁹ comparable to our study.

CONCLUSION

Despite several advances in treatment and in our understanding of the pathogenesis of obstetrical ARF, many aspects in this field remain subject to research. The clinical condition of obstetrical renal failure is still a common occurring; obstetrical hemorrhages including placental abruption being the major cause. Clearly this is an alarming scenario that can only be prevented by provision of multidisciplinary approach considering maternal and fetal complications and timely involvement; above all provision of safe motherhood.

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