

# Risk Factors and Neonatal Outcome in Patients with Placental Abruption

ASIA PARVEEN, NUZHAT MALIK, NAEEMA ALTAF, RAKHSHANDA REHMAN

*Department of Obstetrics & Gynaecology, Sir Ganga Ram Hospital, Lahore*

*Correspondence to Dr. Asia Parveen*

## ABSTRACT

**Objectives:** To determine the risk factors and perinatal outcome in patients with placental abruption.

**Design:** Case control study.

**Setting:** Department of Obstetrics and Gynaecology, Sir Ganga Ram Hospital, Lahore.

**Methods:** All patients presenting with antepartum haemorrhage due to placental abruption at gestation 28 weeks or above were included in study. Other cases of antepartum haemorrhage like placenta previa, vasa previa, cervical or vaginal local pathology were ruled out. Detailed information was collected from the patient regarding her demographic profile, age, parity, previous history of placental abruption. History of pregnancy induced hypertension, any history of smoking or substance abuse or history of fall were recorded on predesigned proforma for the purpose of study.

Neonatal outcome was also recorded including gestational age at delivery, birth weight, APGAR score at 1 min and 5 min interval.

**Duration of Study:** 1 year from 1<sup>st</sup> January, 2009 to 31<sup>st</sup> December, 2009.

## INTRODUCTION

Placental abruption complicates approximately 1% of all pregnancies and remains a significant cause of both maternal and fetal morbidity and mortality<sup>(1)</sup>. It is a condition in which placenta separates prematurely from its normal site before delivery.

Etiology of placental separation is still not clarified but most common cause is gestational hypertension. Abnormal placentation, vascular malformations and increase fragility of vessels predispose to haematoma formation resulting in placental abruption<sup>(1,2)</sup>.

Etiological factors leading to abruption/placentae are several like trauma, snakebites, smoking, HTN etc. maternal hypertension, preeclampsia, eclampsia are the major risk factor for premature separation of placenta.

Maternal smoking is also associated with the premature separation of placenta and its depends upon the number of cigarettes per day<sup>(4)</sup>.

Chorioamnionitis is also an independent risk factor for placental abruption<sup>(5)</sup> but the exact mechanism leading to placental detachment from its bed is unknown.

Placental abruption is associated with high maternal mortality and morbidity. The fetal morbidity & mortality is due to reduced placental blood supply after separation of placenta from its original site<sup>(7)</sup>.

Neonatal complications include prematurity, birth asphyxia, fetal growth retardation and stillbirth.

Maternal complications include haemorrhagic shock coagulopathy, disseminated intravascular coagulation, uterine rupture, renal failure, ischaemic necrosis of distal organs and death.

So, the aim of study is to determine the risk factor leading to placental abruption so as to avoid those conditions resulting in decrease maternal and fetal morbidity & mortality.

### Study design:

Case control study of risk factors and perinatal outcome after placental abruption between 1<sup>st</sup> January 2009 to 31<sup>st</sup> Dec. 2009.

### Setting:

Department of Obstetrics and Gynaecology Unit I, Sir Ganga Ram Hospital, Lahore.

### Inclusion:

1. Gestational age above or equal to 28 weeks.
2. Episode of shock with systolic blood pressure of equal or less than 90 mmHg and a pulse of 100 or more beats per minute.

Cases were collected from the patients at gestational age equal or above 28 weeks who delivered in Sir Ganga Ram Hospital, Lahore. They

have singleton pregnancy with normal vaginal delivery with no evidence of genital trauma.

Cases and controls were selected and all data pertaining to specific information was taken and recorded or predesigned proforma. Informed written consent was taken for use of personal information for the purpose of study.

#### Data analysis:

Data collected and entered in SPSS 16 a computer based programme for statistical of the study. Chi-square test applied to compare the percentages and proportions.

## RESULTS

During the years 2009, there were 100 singleton births with the diagnosis of placental abruption in Sir Ganga Ram Hospital.

One hundred and three cases of placental abruption were seen among the 111,375 singleton deliveries during the study period (0.92 in 1000). Demographic and clinical characteristics of placental abruption patients are shown in Table 1. The mean maternal age of the cases recruited was  $27.2 \pm 6.5$  years. 52.4% were the primigravida. 6.8% were the primigravida. 30.1% had pregnancy in of membranes. 6.8% were substance abusers and smokers. The mean gestational age was  $35.3 \pm 3.4\%$  weeks. Common associated presentation included vaginal bleeding (31.1%), hypertonic uterine contraction or tenderness (30.1%) or back pain (12.6%). Fifty-nine cases underwent ultrasonographic evaluation, but only 11 cases were diagnosed as placental abruption (18.6%). 84.5% of the cases were delivered by cesarean section.

Maternal and neonatal data are shown in Table 2. The mean birth weight was  $2,269 \pm 727.7$  grams. Sixty-seven neonates were born with low birth weigh (65.1%). Fifty-eight neonates were delivered prematurely (56.3%), out of which the mean gestational age was  $32.8 \pm 2.2$  weeks and the means birth weight was  $1,847.2 \pm 588.8$  grams. Among the premature neonates, 44.1% experienced sever birth asphyxia with the consequence of three neonatal death; whereas, 55.9% has mild to moderate asphyxia.

The overall stillbirth, neonatal mortality and perinatal mortality of singleton deliveries during the study period were 5.6, 5.2 and 10.8 deaths per 1,000 lives births, respectively. Stillbirth, neonatal mortality and perinatal mortality were 126.2, 38.8 and 165.0 deaths per 1,000 lives births for

placental abruptions, respectively. The stillbirth, neonatal mortality and perinatal mortality in placental abruptions increased 22.5, 7.5 and 15.3 times, respectively when compared with the general population.

Maternal complications include Couvelaire uterus, DIC and shock transfusion, which was significantly associated with still birth and neonatal death. There was no maternal death.

Table 1: Demographic and clinical characteristics of studying cases

Characteristics	%age
Maternal age (y)	
<20	3%
20-24	17%
25-29	38%
30-34	25%
$\geq 35$	17%
Parity	
0	16%
1-3	82%
$\geq 4.2$ (2.0)	2%
Maternal complications	
Pregnancy induced	20%
hypertension (PIH)	40%
Severe pre-eclampsia	12%
Mild pre-eclampsia	28%
Superimposed	
hypertension	12%
PROM*	6.8%
Previous cesarean section	8%
Cigarette smoking and	
substance abuse	31.1%
Chronic hypertension	30%
Clinical presentations	16%
Vaginal bleeding	4%
Titanic uterine contraction	
Uterine tenderness	
Preterm labour	81.4%
Decreased fetal movement	16.6%
Others	
Ultrasonography	84.5%
Negative	16.5%
Positive	60%
Route of delivery	
Cesarean section	
Normal delivery	
Blood transfusion	

\*PROM: premature rupture of membranes.

Placental abruption with PIH had a significantly higher incidence of low birth weight and perinatal

## Risk Factors and Neonatal Outcome in Patients with Placental Abruption

mortality than the non PIH group (odds ratio OR 4.2, 95% confidence interval [CI] 1.5-12.1;  $p < 0.05$  and or 4.2, 95% CI 1.4-12.2, respectively). Moreover, placental abruption with DIC and blood transfusion had a significantly higher incidence of perinatal mortality than the remainder (OR 12.9 95% CI 2.2-77.8 and OR 3.9, 95% CI 1.3-12.2, respectively). Placental abruption with Couvelaire uterus had a significantly higher incidence of severe birth asphyxia than the remainder (OR 3.7, 95% CI 1.1 – 2.1).

Table 2: Neonatal outcome

Characteristics	%age
Low birth weight	65.1%
Premature delivery	56.3%
Severe neonatal birth asphyxia	44.1%
Mild to moderate asphyxia	55.9%

Still birth	126/1000
Neonatal mortality	38.8/1000
Perinatal mortality	165/1000

### Maternal Complications

Couvelaire Uterus	16.5%
DIC	5.8%
Shock	2.9%