

Foeto-Maternal Outcome Of Abruptio Placentae at a Tertiary Care Hospital

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ABSTRACT:

Objective: To determine the frequency, risk factors and, maternal and perinatal outcome in women presenting with abruptio placentae at a tertiary care hospital.

Methodology: This observational, descriptive study was conducted in the Department of Obstetrics and Gynecology Unit I, Jinnah Postgraduate Medical Centre (JPMC), Karachi from January 2011 to December 2013. All pregnant women with gestational age 28 weeks or greater, having retro-placental clots on ultrasound and/or painful vaginal bleeding were included by using non-probability purposive sampling technique.

Results: There were 24,591 obstetric admissions during the study period, and 21,669 of them delivered. Of these 489 were diagnosed as abruptio placentae, making it a condition with a frequency of 1.98% of obstetric admissions and 2.25% of deliveries. 394 of the 489 cases (80.6%) were un-booked. Majority of them (252, 51.5%) were grand multipara with mean parity of 4.8 ± 3.3. 330 (61.4%) were older than 30 years (36.1 ± 12.6 years). 392 (80.2%) delivered vaginally and the rest 97 (19.8%) were delivered by Caesarean section. Hypertension and pre-eclampsia were collectively seen in 124 (25.2%), anaemia in 77 (15.7%), smoking in 39 (7.9%) and trauma in 8 (1.6%) patients. Noteworthy maternal complications were postpartum haemorrhage (PPH) in 70 (14.3%), postpartum anemia in 55 (11.2%), disseminated intravascular coagulation in 13 (2.65%) and renal failure in 2 (0.4%) patients. Maternal death occurred in 17 (3.5%) women. Still birth occurred in 194 (39.7%) patients. Perinatal Mortality was 68.7%.

Conclusion: Abruptio placenta has a significantly increased risk of maternal and perinatal mortality. Risk factors include multiparity, hypertension, pre-eclampsia, anaemia and smoking.

Keywords: Abruptio placentae, Postpartum haemorrhage, Anaemia, Disseminated intravascular coagulation, Perinatal mortality, Maternal mortality.

Introduction:

Abruptio placenta is defined as the premature separation of a normally implanted placenta between 24-week gestation and delivery.¹ It complicates about 1% of pregnancies worldwide and 7% in Pakistan, and is a leading cause of vaginal bleeding in the latter half of pregnancy.^{2,3} It is also an important cause of perinatal mortality and morbidity. The maternal effect of abruption depends primarily on its severity, whereas effect on the foetus is determined both by its severity and the gestational age at which it occurs. Exact etiology of placental abruption remains unknown, however multiple risk factors have been identified, among which one or more may be present at a time.⁴ These include

maternal hypertension, pregnancy-induced hypertension, advanced maternal age, multiparity, anaemia, low socio-economic condition, trauma and smoking.^{2,4,5,6}

Hypertensive state of pregnancy is associated with 2.5% to 17.9% incidence of placental separation.⁷ Woman with HELLP syndrome have an increased risk of placental abruption.⁸ Abruptio placentae can cause a number of maternal and foetal complications, which include haemorrhagic shock, disseminated intravascular coagulation (DIC), renal failure, necrotic ischemia of organs like liver, adrenal or pituitary, postpartum haemorrhage, postpartum anemia, foetal hypoxia, premature birth and intrauterine foetal demise.^{2,3,6,7}

Maternal complications increase in severity when women are admitted with severe abruption and intrauterine foetal death.^{9,10}

This study was carried out to determine the frequency, risk factors and, maternal and foetal complications of abruptio placentae at a tertiary care public hospital.

METHODOLOGY:

This descriptive observational study was conducted in the Department of Obstetrics and Gynecology unit-I JPMC, Karachi from January 2011 to December 2013. During the study period, total 24,591 pregnant women were admitted, 21669 deliveries occurred and among them 489 cases of abruptio placentae were observed. All the pregnant women with gestational age 28 weeks or more with painful vaginal bleeding and/or retroplacental clot on ultrasound were included in this study by using non-probability purposive sampling technique. Women presenting with vaginal bleeding due to other causes than abruptio placenta were excluded from the study.

Patients with placental abruption were managed as an

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emergency. Intravenous lines were setup, hypovolaemia was treated immediately with plasma expander and then with cross-matched blood when it became available. Following this the patients were carefully evaluated by rapid history, clinical examination, laboratory investigations and ultrasound scans.

Expeditious delivery was the mainstay of treatment and the cases of intrauterine death were preferably delivered vaginally, except in few cases where excessive bleeding necessitated abdominal route of delivery. Caesarean section was done in cases of foetal distress which was evident by non-reassuring cardiotocography(CTG). Patients who developed postpartum haemorrhage secondary to abruptio placenta were managed promptly. Uterine atony was managed by uterine massage, rectal misoprostol, oxytocic infusion and intramyometrial Prostaglandin F₂-α. Patients not responding to these measures were treated by obstetrical hysterectomy. Cases with oliguria due to massive haemorrhage were treated with judicious intravenous fluid replacement and strict intake and output monitoring. Consumptive coagulopathy was treated with blood transfusion; fresh frozen plasma transfusion and patient were shifted to intensive care unit for further management. Maternal complications like shock, coagulopathy, renal failure, postpartum hemorrhage, postpartum anaemia and maternal deaths were recorded. Intrauterine,

intrapartum and early neonatal deaths were looked into. Mean with standard deviation was calculated for quantitative variables like age, parity and gestational age. Frequency and percentage was computed for qualitative variables including smoking, hypertension, socio-economic status and maternal outcome or complications such as DIC, acute renal failure, shock, PPH, postpartum infection, postpartum anaemia and maternal death. SPSS-10 was used to analyze data.

RESULTS:

During the study period, total 24591 pregnant women were admitted, out of which 21669 were delivered. 489 cases of abruptio placenta were observed, making the Frequency 1.98% of total admissions and 2.25% of total deliveries. Among these 489 cases, 394 (80.6%) were un-booked. Of the deliveries, 392 (80.2%) were vaginal and the rest i.e. 97 (19.8%) underwent operative delivery. In this study the most frequent age group was >30 years (300, 61.4%) with mean age of 36.1 ±12.6 years. Majority (252, 51.5%) were grandmultiparous with mean parity of 4.8±3.3. Most of the women, 265(54.2%) presented at a gestational age of more than 37-week (Table-1). Risk factors associated with abruptio placentae are shown in Table-2 whereas maternal and perinatal outcomes are detailed in Table-3.

Table-1
Maternal characteristics

	Number	% (95% Confidence Interval)
Booking Status		
Booked	95	19.4 (16.1 - 23.1)
Un-booked	394	80.6 (76.9 - 83.9)
x ² =365.6, p=0.001		
Age (Years) (36.1 ± 12.6) years		
15 – 20	78	15.9 (12.9 - 19.4)
21 – 30	111	22.7 (19.1 - 26.5)
31 – 40	111	22.7 (19.1 - 26.5)
> 40	189	38.7 (34.4 - 43.0)
x ² =72.7, p=0.001		
Parity (4.8 ± 3.3)		
0 + 0	90	18.4 (15.1 - 22.0)
1 - 4	147	30.1 (26.1 - 34.2)
5 & above	252	51.5 (47.1 - 55.9)
x ² =124.2, p=0.001		
Gestational Age (Weeks) (35.5 ± 3.2)		
28 – 36	224	45.8 (41.4 - 50.2)
37 – 40	265	54.2 (49.7 - 58.5)
x ² =6.8, p=0.008		
Mode of deliveries		
Spontaneous vaginal delivery	302	61.8 (57.3 - 66.0)
Instrumental delivery	90	18.4 (15.1 - 22.1)
Caesarian Section	85	17.4 (14.2 - 20.9)
Obstetrical hysterectomy	12	2.4 (1.3 - 4.1)
x ² =511.44, p=0.001		

Table-2
Maternal Risk Factors

Risk factors	Number	% (95% Confidence Interval)
Chronic Hypertension	85	17.3 (14.2 - 20.9)
Anemia	77	15.7 (12.7 - 19.1)
Pre-eclampsia	39	7.9 (5.8 - 10.6)
Smoking	39	7.9 (5.8 - 10.6)
Trauma	8	1.6 (0.7 - 3.0)
Polyhydramnios	5	1.0 (0.3 - 2)
$\chi^2=145.78, p=0.001$		

Table:3
Maternal & Perinatal Outcome

Maternal Complications	Number	% (95% Confidence Interval)
Hypovolemic Shock	72	14.7 (11.8 - 18.0)
PPH	70	14.3 (11.4 - 17.6)
Postpartum Anemia	55	11.2 (8.6 - 14.2)
DIC	13	2.65 (1.4 - 4.4)
Renal Failure	2	0.4 (0.06 - 1.3)
Maternal Deaths	17	3.5 (2.1 -5.4)
$\chi^2= 137.29, p=0.001$		
Perinatal Outcome		
Alive	295	60.3 (56.0 - 64.6)
Still births	194	39.7 (35.4 - 44.0)
Early Neonatal Deaths	142	29.0 (25.1 - 33.2)
Perinatal deaths	336	68.7 (64.5 - 72.7)
$\chi^2= 195.92, p=0.001$		

DISCUSSION:

In this study the frequency of abruptio placentae was 2.25%. Clinical studies from developed countries report incidence of abruptio placentae from 0.7% to 1%.^{8,9,10} In contrast, studies from developing countries report its incidence up to 7%.^{11,12,13} The frequency in this study was comparable with other studies from Pakistan^{14,15}. The high rate (80.6%) of un-booked cases observed in this study was also comparable with the other studies nationwide.^{14,15,16} Unawareness and ignorance of antenatal care was one of the most important factors that gave way to abruptio placenta. In the developed world, the concept of un-booked cases barely existed; hence this variable was not even mentioned in studies from those parts of the world. The most frequent age group was older than 30-years. Few studies have reported a positive association of abruptio placenta with advanced maternal age^{17,18} while other studies found no relationship.^{19,20} Multiparity was another risk factor noted in many studies.^{11,19,20} In this study grand-multiparity was noted as a predisposing factor for abruption. Most cases of abruptio placenta (52.4%) were seen at gestational age greater than 37-weeks. Others have shown either no relationship of the condition with gestational age¹ or even it being more common in preterm pregnancies. Hypertension, anemia, and smoking were other major

risk factors in this study in this order. Other studies also supported our results and mention them as major risk factors for abruption in more or less similar order.^{22,23,24} However, in studies from the western countries, smoking was higher in the order as it is far more frequent in their society whereas the trend of smoking in women of our population is minimal because it is not considered favorably by family and society.^{27,28} Maternal complications encountered were hypovolemic shock (14.7%), PPH 14.3%, postpartum anemia (11.2%), DIC (2.65%) and renal failure (0.4%). International as well as local studies have also reported these maternal outcomes in more or less similar proportion.^{9,10,20,23,24,25} Maternal mortality was seen in 17 (3.5%) patients which was lower than another study by Mustafa 8.5%.³ In other studies, no maternal death was reported.²⁶ Anemia and DIC were the major causes of maternal deaths. The women who died were admitted in hypovolemic shock and could not be revived in spite of all resuscitative measures. Perinatal mortality (68.7%) was higher than studies from the developed world.^{9,27,28} A similarly high perinatal mortality has been reported from other developing countries.^{23,25,26} Nearly a third, i.e. 194 (39.7%) babies were stillborn, 295 (60.3%) babies were born alive, but 142 of them died in first 7 days of life. Follow-up of

babies in late neonatal period was not possible therefore, only early neonatal deaths were included in this study. The likely reason for high perinatal mortality was that most of the patients came very late and had intrauterine death at the time of admission, or had such severe abruption that the newborns were born in a moribund state. Abruption was not only an independent risk factor for poor outcome among babies born before 32 weeks of gestation, but a premature delivery can also increase the foetal mortality and morbidity in cases of abruption.^{9, 27, 28}

CONCLUSION:

Abruption placenta, with its high frequency, is still one of the major threats to the well-being of pregnant women in our population. Hypertension, anemia, grand multiparity and smoking are its major risk factors. Major adverse maternal outcomes are postpartum anemia, hypovolemic shock, postpartum haemorrhage and maternal death. Abruption placenta can also result in significant perinatal morbidity and mortality.

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