MATERNAL AND PERINATAL OUTCOME IN ABRUPTIO PLACENTA

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ABSTRACT

BACKGROUND

Antepartum Haemorrhage (APH) is the leading cause of vaginal bleeding. It is also the important cause of maternal morbidity as well as perinatal morbidity. APH is defined as bleeding per vagina occurring after 28 weeks of gestation and before the birth of the baby. Among APH, abruptio placenta and placenta previa are the leading cause that endanger the life of the mother and a great risk to high unfavourable perinatal outcome. Placental abruption is the bleeding from the premature separation of the normally implanted placenta after 20 weeks of gestations and prior to the birth of the foetus/foetuses. It is the major contribution of obstetric haemorrhage and complicates 0.8 to 1% of pregnancies worldwide. Placental abruption is the premature separation of implanted placenta before the delivery of foetus/foetuses.

The aim of the study is to analyse the risk factors associated with abruption and hence methods can be formulated to prevent maternal mortality and morbidity.

MATERIALS AND METHODS

The present study is a retrospective study and was done in the Department of Obstetrics and Gynaecology from July to December, 2016, for a period of 6 months in the year 2016 at Government K.A.P.V. Medical College, Trichy, South India.

RESULTS

The total number of abruption placenta cases reported during the study period- June 2016 to November 2016 were 40. The total number of livebirth during same period was 5,348. The stillbirth rate was 42.5% and neonatal death rate was 22.5%. Clinical information were collected, maternal age, parity, gestational age at parity, prior history of abruption, clinical presentation like pain, bleeding, type of abruption like concealed or revealed amount of retroplacental clots and its size and degree of abruption associated with hypertensive disorders, mode of delivery, abruption-delivery interval, maternal complications, requirement of blood transfusions and immediate neonatal outcome. The results of studies were recorded in percentage and frequencies.

CONCLUSION

Cases of placental abruption vary widely in severity and complications. A strong association has been found between abruption and preterm delivery. The acute blood loss in placental abruption leads to hypovolaemic shock, disseminated intravascular coagulation, acute renal failure and fetomaternal haemorrhage depending on the severity of abruption.

KEYWORDS

Abruptio Placenta, Antepartum Haemorrhage, Maternal Morbidity, Disseminated Intravascular Coagulation.

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BACKGROUND

Antepartum haemorrhage is leading cause of vaginal bleeding. It is also an important cause of maternal morbidity, mortality as well as perinatal morbidity and mortality. Antepartum Haemorrhage (APH) is defined as bleeding per vaginum occurring after 28 weeks of gestation and before the birth of baby/babies. Among antepartum haemorrhage, abruptio placenta and placenta praevia are the leading causes that endanger the life of mothers and great risk to highly unfavourable perinatal outcome. Placental abruption is the bleeding from the premature separation of normally implanted placenta after 20 weeks of gestation and prior to the birth of the foetus/foetuses. It is the major contributor of obstetric haemorrhage and complicates 0.8 to 1% of pregnancies worldwide. The commonly attributed risk factors for abruption placenta include the following gestational hypertension, severe preeclampsia, eclampsia, prior caesarean section, increased maternal age more than 35 years, trauma, smoking, cocaine use, multifetal gestation, thrombophilias, polyhydramnios, intrauterine infections, alcohol consumption, short umbilical cord, previous placental abruption, chorioamnionitis, prolonged rupture of membranes, maternal age younger than 20 years, male

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foetal sex, low socioeconomic status, retroplacental fibromyoma, retroplacental bleeding from the needle puncture, i.e. post amniocentesis, grand multiparity, chronic hypertension, polyhydramnios, gestational diabetes, oligohydramnios, foetal malpresentations and preterm premature rupture of membranes. Abruption involving more than 50% of the placental surface is frequently associated with foetal death. The clinical features of abruption placenta vary according to the severity of bleeding and degree of separation of placenta. The most common presentation of abruption include painful vaginal bleeding, abdominal tenderness, abnormal uterine contractions, premature labour, maternal instability, oliguria, foetal distress and foetal death. Grading of abruption placenta is- Grade 0- Retroplacental organised clot present, most often discovered retrospectively after delivery; Grade 1- Where foetus mild jeopardy, maternal vitals stable; Grade 2- Maternal tachycardia, moderate-to-severe uterine tenderness, orthostatic changes present; Grade 3- Vaginal bleeding severe, maternal shock present and foetal death associated with anuria and coagulation defects. Abruption placenta accounts for 20% to 25% of antepartum haemorrhage and increased incidence of DIC, severe maternal shock and renal failure, postpartum haemorrhage, maternal death and abruptio placenta is associated with adverse foetal outcome including low birth weight, preterm birth, intrauterine growth retardation, birth asphyxia, foetal distress, low Apgar score, NICU admissions, stillbirth, congenital anomalies and perinatal death rating to 4.4 to 67%. Ultrasound diagnosis of abruption placenta is not always definite, though some cases we can see the irregularity in placental margin and sometimes it may reveal retroplacental clot, so clinical acumen is the important factor in diagnosing abruption. The management of abruption placenta should be individualised on case-to-case basis depending on the severity of abruption and gestational age. In case, where foetal demise had occurred, vaginal delivery is preferred. Disseminated intravascular coagulation should be managed aggressively. On the contrary, if foetus is live and term with unfavourable cervix or any maternal compromise if present, prompt delivery by caesarean section is indicated and with close monitoring, rapid delivery to be done.

Aims and Objectives

Depending on the severity of placental abruption, both mother and baby are affected. Our study is to determine the potential risk factors for placental abruption and the possible ways to prevent it.

MATERIALS AND METHODS

Our study was conducted in a tertiary centre, Government KAPV Medical College, Trichy, South India. The study period included was from July to December 2016 and this is a retrospective study. Total of 5348 deliveries occurred during this period, out of which, 40 abruptions occurred. We studied the age, socioeconomic class, risk factors that caused abruption, maternal and foetal outcome and in detail. Several risk factors that have been identified with abruptio placenta includes prior abruption, smoking, trauma, cocaine use, multifetal gestation, GHT, preeclampsia, thrombophilias, advanced maternal age, PPROM, intrauterine infection, maternal headache (migraine), chronic hypertension and polyhydramnios.

Clinical information were collected. Maternal age, parity, gestational age at parity, prior history of abruption, clinical presentation like pain, bleeding, type of abruption like concealed or revealed amount of retroplacental clots and its size and degree of abruption associated with hypertensive disorders, mode of delivery, abruption delivery interval, maternal complications, requirement of blood transfusions and immediate neonatal outcome. The results of studies were recorded in percentage and frequencies.

Observation

In our study period, the total number of deliveries were 5348 and abruption placenta counted to 40 cases. Ours is a tertiary centre where we receive more number of referral cases. An incidence of abruption placenta 0.74% was observed.

Incidence of Abruptio Placenta in MGMGH-

	N=5348
Total number of deliveries	5348
Total number of abruption placenta cases	40
Incidence	0.74%

Table 1. Incidence of Abruptio Placenta

Only 40% of the cases of abruption placenta were booked in our hospital.

Booking Status of Abruptio Placenta Cases-

Cases Booked At	**N=40**	**Percentage**
MGMGH	16	40%
Booked elsewhere	9	22.5%
Unbooked	15	37.5%

Table 2. Booking Status

Age-wise distribution of abruption in the study population (n=40).

Age Wise Distribution of Abruptio Placenta Cases-

Age in Years	**N=40**	**Percentage**
18-20	5	12.5
21-25	14	35
26-30	15	37.5
31-35	4	10
>35	2	5

Table 3. Age Wise Distribution

Number of rows- 5.

According to the age criteria, peak incidence of abruption occurred in the 26-30 years age group.

Parity Index	N=40	Percentage
Primi	15	37.5
Elderly primi	1	2.5
2nd gravid	16	40
3rd gravid	6	15
Grand multi	2	5
Table 4. Parity Wise Distribution (n=40)		

Total number of rows- 5.

Increased incidence of abruptio placenta occurred in 2nd gravida of about 40% followed by primigravida 37.5%.

Based on- 1- Education - 7 scores; 2- Occupation - 10 scores; 3- Family income per month in rupees gives 12 scores.

Class	Scores	N=40	Percentage
Upper	26-29	-	-
Upper middle	16-25	4	10
Lower middle	11-15	9	22.5
Upper lower	5-10	11	27.5
Lower	<5	16	40
Table 5. Socioeconomic Class as per Modified Kuppuswamy Criteria			

Total number of rows- 5.

This study clearly show that abruption occurring more in low socioeconomic class of 67.5%.

Risk Factors	N=40	Percentage
Severe preeclampsia and eclampsia	10	25
Previous caesarean section	7	17.5
Chronic hypertension	2	5
Polyhydramnios	2	5
Increased maternal age	4	10
Recurrent abruption	4	10
Maternal trauma	2	5
Multiparity	2	5
Anaemia	3	7.5
GDM	2	5
Unknown	2	5
Figure 6. Maternal Risk Factors for Abruption in Our Study		

Total number of rows- 11.

Previous caesarean section, severe preeclampsia and gestational hypertension were the prime factors in the aetiology in our study.

Clinical Features	N=40	
Vaginal bleeding	15	37.5
Abdominal pain	15	37.5
Both vaginal bleeding and pain	10	25
Figure 7. Clinical Features		

Total number of rows- 3.

Most cases had vaginal bleeding with pain in lower abdomen.

Mode of Delivery	N=40	Percentage
Vaginal	3	7.5
LSCS	35	87.5
Vaginal birth after caesarean section	1	2.5
Emergency hysterotomy	1	2.5
Table 8. Mode of Delivery		

Since our hospital is a referral centre, most cases will be sent with complications like maternal shock, DIC and AKI (acute kidney injury); hence, caesarean section rate was 87.5% in this study.

Maternal Complications	N=40	Percentage
Ventilatory support	5	12.5
Use of vasopressors like dopamine, noradrenaline	4	10
Use of blood and blood products	14	35
Postpartum haemorrhage	2	5
Disseminated intravascular coagulation	5	12.5
Acute renal failure	2	5
Couvelaire uterus	2	5
Hysterectomy	1	2.5
Hypovolaemic shock	3	7.5
Maternal death	2	5
Table 9. Immediate and Late Maternal Postpartum Complications		

Total number of rows- 10.

In this study, maternal death was due to irreversible hypovolaemic shock, DIVC and MODS (multiorgan failure), blood and blood products usage was 82.5% and it saved a lot in mothers with haemodynamic instability.

Morbidity Factors	N=40	
Anaemia	15	37.5
Intensive care unit stay	15	37.5
Infection	5	12.5
Vvf	3	7.5
Psychiatric ailments	2	5
Figure 10. Maternal Morbidity		

Total number of rows- 5.

Anaemia was invariably present in most of cases of abruption placenta.

Parameters	N=40	Percentage
Intrauterine death/stillbirth	10	25
Term baby	10	25
Preterm baby	10	25
Extreme preterm baby	2	5
NICU admissions	3	7.5
Neonatal death	5	12.5
Table 11. Perinatal Outcome in Abruption Placenta		

Total number of rows- 7.

The increased incidence of stillbirth and IUD were due to prematurity and compromised state of the mother.

Normal weight (2.5-4.2 kg)	5	12.5
Very low birth weight (<1.5 kg)	7	17.5
Extreme low birth weight (<1 kg)	3	7.5
Low birth weight (1.5-2.5 kg)	25	62.5
Total Number of Patients	**40**	**100%**

Table 12. Birth Weight of the Baby (n=40)

Total number of rows- 4.

In our study, most babies were preterm and low birth weight 62.5% and coincides with Nath and coworkers[1] who stated that preterm birth was the overriding association with these low birth weight babies.

DISCUSSION

The incidence of abruption in our study was 0.74% and this is consistent with the findings from other studies where the incidence was found to be 0.5 to 1% in Asian and American countries as Ananth CV.[2] The incidence of preeclampsia and chronic hypertension were found to be increased and coincides with Sibai et al.[3] There is certainly increased risk of placental abruption in women with previous caesarean section. This coincides with other reports given by Nayama et al,[4] Wandabwa et al,[5] it was 19%; in our study-17%. In our study, increased incidence of abruption placenta associated with previous caesarean section correlates with Sumangala Dev.[6] In our study, recurrent abruption rate was 10% that correlates with Toivonen et al[7] that reported 11.9%. Chronic hypertension increased the risk of abruption. In our study, it was 5%, which also coincides with Zetterstrom and colleagues[8] that states two fold increase. Women older than 40 years were 2.3 times more likely to develop abruption as stated by Cleary-Goldman et al.[9] Our study didn't show any association of abruption with maternal age. In our study, we found abruption was more common in the second gravida 40%, Sarwar et al[10] had 49% with parity between.

There was a sharp increased incidence noted in low socioeconomic group that is due to deficiency of dietary factors and improper antenatal care. Increased incidence in older age was attributed to inability to adapt to physical stress that accompanies ageing. In our study, blood and blood products in the form of fresh whole blood, fresh frozen plasma, cryoprecipitate and platelet transfusion rate was 50%, this coincides with Nandonde K[11] 69.75%. Regarding babies, most babies had mean Apgar score of 6/10 and stillbirth rate of 25% that coincides with Jabeen et al[12] that gives stillbirth rate of 36.7% livebirth rate was 62.5%, in our study that corroborates with Jabeen et al[12] having livebirth rate of 63.22%. Our preterm incidence was 30% that was consistent with Jabeen et al 53.4%.

CONCLUSION

Abruption placenta is an obstetric emergency and it tends to produce serious maternal morbidity and mortality, foetal morbidity and mortality. Our study clearly shows abruption placenta incidence has increased in women with low socioeconomic status, no antenatal checkup and poor nutritional status. Hence, prevention should be aimed at educating these women regarding proper antenatal checkup, good nutritional food and early reporting to the hospital, if she has the alarming symptoms pertained to abruption placenta. Here lies the vital role of primary healthcare providers like village health nurse, anganwadi workers and field workers. So, early detection and timely referral of these women is needed for reducing the maternal morbidity and maternal mortality as well as foetal morbidity and mortality caused due to abruption placenta, which is always a nightmare to even senior obstetricians.

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