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Abruptio Placenta and Its Feto-Maternal Outcome

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Abstract:
Background: *Abruptio placenta is one of the obstetric emergency which require intense management at earliest to get favourable maternal & fetal outcome. The study was a prospective analytical study done in Govt General hospital,Anantapur during November 2019 and October 2020 aimed to know the incidence, analyse maternal &fetal outcome and to know the predictors of maternal &fetal morbidity and mortality.*
Materials &Methods*: All pregnant women diagnosed to have abruptio placenta from 28 weeks of gestation were included in the study. Other causes of APH are excluded. Detailed history, Clinical examination, appropriate investigations were done. Mode of delivery was decided depending on obstetric assessment.*
Results: *124 patients identified out of 9902 deliveries. Anaemia(32.25%), PIH(30.64%),chronic hypertension (4.8%)were associated with abruption.89.5% delivered within 6 hours .96 % delivered vaginally and 22.6% had caesarean section. Two patients (1.61%) died out of 124 cases.Perinatal out come – 36 alive(29.03%) and 88 deaths(70.96%) .*
Conclusion*: Institutional preparedness and availability of blood and blood products in the management of abruption placenta significantly improves fetal and maternal survival. Team efforts by obstetricians, neonatologist and intensivists are required for better maternal and fetal outcomes.*
Keywords: *Abruption, Anaemia, Feto-Maternal out come*

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I. Introduction

Abruptio placenta is one of the grave obstetrical emergency which causes partial or complete placental detachment of normally situated placenta after 28 weeks of gestation before delivery of the fetus[1].It deprives the fetus of oxygen and nutrition leading to both short term and long term consequences among survivors.[1,2]. It is among the leading causes of maternal and perinatal mortality and morbidity world wide[3,4]. Exact etiology of placental abruption remains unknown, but multiple predisposing risk factors have been identified. These include advanced maternal age, pregnancy-induced hypertension, anaemia, polyhydramnios, premature rupture of membranes, multiple gestations, short umbilical cord[5] .PIH associated with 2.5%-17.9% incidence of placental abruption[6]. Abruptio placenta occurs in 0.4-1% of pregnancies[7,8,9]. Perinatal mortality is higher due to the strong association with preterm births(10%)[8,9,10].

II. Aims And Objectives

1. To study the incidence of abruptio placenta.
2. To analyze the outcome of pregnancy in terms of maternal and fetal morbidity and mortality in abruptio placenta cases
3. To determine the predictors of perinatal death, maternal death, survival and prolonged hospital stay for patients with the abruptio placenta.

III. Materials and Methods

This is a prospective analytical study conducted in the department of OBG in govt general hospital and college at Anantapur during November 2019 and October 2020.
INCLUSION CRITERIA: All pregnant women diagnosed to have abruptio placenta from 28 weeks of gestation were included in the study.
EXCLUSION CRITERIA:
1.Patients of gestational age <28 weeks
2. Third stage complications
3. Bleeding per vaginum due to other causes like placenta previa, vasa previa and cervical lesions were excluded from the study.

Detailed history from patient was taken. Clinical examination including general and obstetric examination was done to assess general condition and per abdominal examination followed by per vaginal examination was done to assess BISHOP s score, presenting part, position, pelvic assessment, ARM, to decide induction regimen. Appropriate investigations like CBP, platelet count, blood grouping & Rh typing, Coagulation profile, viral screening, LFT,RFT and USG examination were carried out. Cross-matching also sent. Coagulation failure treated with fresh blood transfusion, FFP, PRP, cryoprecipitate. Appropriate management of renal failure was done in collaboration with a nephrologist. Maternal outcome measured in terms of mode of delivery, maternal morbidity-mortality and fetal outcome measured in terms of Gestational age at birth, birth weight, APGAR score. Predictors of perinatal death, maternal death and survival and prolonged hospital stay were assessed. The results cbtained were analysed statistically.

IV. Results

One hundred and twenty four cases of abruption were diagnosed out of 9902 deliveries in the study period. Out of which, 87.09% were unbooked cases. The most common age group for abruption was 21-25 years, which accounted for about 43.54% followed by 26-30 years 33.87%. Most of cases (71%) belong to 2ndand 3rd gravida followed by multigravida >4(17.7%) and Primigravida(11.3%). The incidence of abruption is slightly more between 33-36 weeks (42.7%) but a significant number of cases presented after 36 weeks(34.7%).Less number of cases were noted in <32 weeks of gestational age group(22.6%). Commonest risk factor for abruption was Anaemia (32.25%), followed by PIH (30.64%). However, anaemia can be attributed either to the cause or effect of abruption.cause is unknown in 25.8%, chronic hypertension (4.8%),polyhydramnios(1.6%)and PROM >24 HRS(0.8%). 102 patients had bleeding per vaginum (82.3%),12 had pain abdomen(9.7%)and10 had decreased fetal movements as symptoms. Most cases of abruption were grade 3 (64.51%), only minority of cases were in grade 1 and 2(21.8% & 13.7%).Ninety six patients delivered vaginally(96%)and 28 underwent caesarian section(22.6%) .One hundred and eleven patients (89.5%) delivered within 6hrs, nine patients delivered between 6&8hrs (7.2%) and four (3.3%) took more than 8hrs admission delivery interval. Of 124 deliveries, 122 mothers were alive (98.38%). Two patients died due to PPH, DIC, ARF&shock (1.61%)

Table 1 Predictors of Maternal death and survival

Patients Characteristics	Maternal death		p-value
	Yes	No	
DIC			
Yes	1	1	0.0316
No	1	121	
Blood Transfusion			
Yes			
No	1	98	0.35
	1	24	
PPH			
Yes	2	10	0.0059
No	0	112	
ARF			
Yes	1	2	0.048
No	1	120	
Shock			
Yes	1	5	0.079
No	1	117	

Five predictors were evaluated for determining maternal survival (or) death among pregnant women with Abruptio Placenta. Characteristics which were strongly associated with maternal death were DIC (p-value – 0.0316), PPH (p-value 0.0059), ARF (p-value 0.048). However, there was no significant association between maternal deaths with blood transfusion (p-value 0.35) and shock at presentation (p-value 0.079).

Table 2. Predictors of prolonged hospital stay:

Patients Characteristics	prolonged hospital stay		p-value
	Yes	NO	
PPH Yes No	 6 16	 5 97	0.0041
DIC Yes No	 1 1	 1 121	0.0316
Mode of delivery Vaginal delivery C-section	 6 18	 90 10	0.0001
Shock Yes No	 4 26	 1 93	0.01
Anaemia Yes No	 80 20	 10 14	0.005
ARF Yes No	 6 18	 0 100	0.001

Five predictors were used to evaluate prolonged hospital stay, characteristics which were strongly associated with prolonged hospital stay were a shock, anaemia, mode of delivery, ARF, PPH.Out of 124 births, 36 alive (29.03%) and 88 deaths(70.90%)in form of IUD&stillbirths. Out of 36 alive babies, APGAR score less than 6 in12 (33.33%) babies and between 6-10 in 24 (66.66%).

Table 3. Predictors of perinatal death.

Patients Characteristics	Perinatal death		p-value
	YES	NO	
Age of the mother <20 21-25 years 26-30 years > 30 years	4 39 30 15	2 15 12 7	0.977
Birth weight 1-1.5 Kg 1.6 – 2.00 Kg > 2 kg	 50 26 12	 1 10 25	<0.001
Gestational age 28-32 weeks 32-36 weeks >36 weeks	 18 37 33	 10 16 10	0.495
FHR at admission Fetal distress 120-160 bpm	 60 28	 6 30	<0.001
Mode of delivery Vaginal delivery C-section	80 16 8 20		<0.001

Birth weight ,FHR at the time of admission and vaginal delivery have statistically significant predictors of perinatal death. There was no association between perinatal death with maternal age and gestational age.

V. **Discussion**

The frequency of abruption in our study group was 1.25% which was similar to that of incidence found by Kotten et al(1.22%).However, high rates have been observed in studies from other parts of world [7]. The total number of deliveries in our study were 9902, out of which 124 cases were abruptio placenta.

In our study, the highest incidence found among 21-25 years (43.54%). This is because the largest set of women delivered in our institute were in the age group of 21-25 years. Next common age group has been 26-30 years (33.87%). The percentage of unbooked cases in our hospital was 87.09%. Perinatal mortality and morbidity were significantly increased in unbooked cases. The maternal mortality in our case was also an unbooked case. Our study correlates with the study conducted by Sumana et al-67% of cases in Para 2 to 4. 11.29% of Primi gravida with abruptio placenta were reported in this study. More incidence of the abruptio placenta in our study is found with gestational age 33-36 weeks and was about 53% in Alka et al[11]. and Sumana et al found the highest incidence among the same subgroup. Hypertensive disorders were found in 44% cases consistent to study by Akadri et al[12] in which hypertensive disorders were found in 53.1%. Sumana et al. found an incidence of 27% among whom 4 cases have chronic hypertension, and 23% had pregnancy induced hypertension. Anaemia was found as an associated factor in 35.4% of women in the study by Razia MA et al[13], this nearly correlates to our study of 32.25%. The incidence is much higher in the study by Sumana et al. This reflects the poor nutritional status of our population. In another study from Asia decreased BMI indicating poor nutritional status was found as an etiological factor for abruption. Hossain et al[14] reported a recurrent abruption rate of 9% in women with the previous history of abruption. Toivonen et al[15] reported a recurrent aburptio placenta rate of 11.9%.sumana et al& alka et al[11] studies showed 2% and 0.2% respectively,where as our study has 4.03% of recurrent abruption rate.82.25% of cases of Bleeding per vaginum was found as the most common clinical manifestation of abruption followed by tense and tender uterus observed in 9.67%.Class3 i.e. severe grade of abruption is 64.5% and class2(moderate)is 13.7% which is almost correlating with Alka et al [11]study i.e. 70% and 13.2%.Majority of our women 77.41% had either spontaneous or induced vaginal delivery, followed by Caesarean section in 22.58% correlating with Seemi Bibi et al[16] Where as Hossain et al[14] and Kevin Nandonde et al[17] has more caesarean section(45% and 51.6%).

Table4. Comparison of maternal complications of Abruptio placenta in various studies.

Maternal complication	Razia MA etal	Kevin Nandode et al	Phadthora etal	Our study
PPH	16.6%	36.8%	25%	8.87%
DIC	4.1%	3.5%	30%	1.61%
Shock	-	17.9%	-	4.03%
AKI	6.2%	31.6%		4.83%

Our study shows the incidences of PPH are 11 cases (8.87%). According to Razia MA et al[13], the incidence of PPH in abruption was 16.6%. Incidence of DIC was 1.61% in our study. Correct incidence of Couvelaire was not known because laparotomy was not done in all cases. When bleeding in abruption is concealed, maternal morbidity was increased. We had two maternal deaths in our study group, due to uncontrolled haemorrhage with shock and disseminated intravascular coagulation.

Table 5. Comparison of MMR in Abruptio placenta with other studies.

Author	Year	Incidence in percentage
Razia MAet al	2007	1.87
Hossain et al	2008	2.86
Sumana et al	2011	6
Kevin Nandode et al	2013	3.2
Akadri et al	2018	4.1
Our study	2018	1.61

In our study, the incidence of premature babies less than 36 weeks is 65.32% which coincides with other study Alka et al[11] (72%).Perinatal mortality is high in Alka et al[11] and seema bibi et al[16].(76% & 68%) which is correlating with our study(71%). Perinatal mortality was significantly increased when the abruption - admission interval and abruption- delivery interval is increased. Perinatal deaths are mainly due to intrauterine asphyxia.

VI. Conclusion

Incidence of Abruptio placenta is higher in our study because most of the pregnant women belong to rural areas with poor socioeconomic status, illiteracy, lack of awareness of health education and without proper antenatal care, poor nutrition.

A need for mass information regarding the importance of antenatal care, nutritional status, prompt and early diagnosis is to be implemented. Care can be taken to decrease overall incidence and severity of the condition by avoiding high parity by timely sterilisation, proper antenatal care, the anticipation of abruption in high-risk cases, early detection, timely admission in tertiary care centres, strict surveillance can give better results. Institutional preparedness and availability of blood and blood products in the management of abruption

placenta significantly improves fetal and maternal survival. Team efforts by obstetricians, neonatologist and intensivists are required for better maternal and fetal outcomes

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