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RESEARCH ARTICLE

ANNUAL DATA REVIEW ON RISK FACTORS AND IMMEDIATE MATERNAL AND PERINATAL OUTCOMES IN A TERTIARY HOSPITAL IN TANZANIA

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ABSTRACT

Background: Placenta abruption is an obstetric emergency that rise to major maternal and perinatal morbidity and mortality in low resource countries. It is usually unpredictable, but the risk factors identification is important. These include premature rupture of membranes, oligohydramnios, antepartum hemorrhage, advanced maternal age, multifetal gestation and abdominal trauma. This study aims to review annual data in women with placenta abruption so as to identify the risk factors, presentation mode, management and immediate maternal and perinatal outcomes at Amana Regional Referral Hospital, Dar es Salaam, Tanzania. **Methods :** Retrospective observational study using medical records of all women who delivered from 28 weeks of gestation at Amana Regional Referral Hospital from January 2023 to December 2023 (n = 159) were analyzed. The results were presented in percentage and frequencies. Data were analyzed in SPSS version 23 software. **Results:** The incidence of placental abruption was 2.1%. Risk factors for placenta abruption were hypertensive disorders of pregnancy, Premature rupture of membranes, previous Caesarean delivery, anaemia during antenatal period and multifetal gestation. Placenta abruption occurred more commonly in the age group between 20 - 29 years (40%), in their second pregnancy (49.2%) and at a gestation age of 28 - 33⁺⁶ weeks. Maternal complications associated with placenta abruption were postpartum hemorrhage , Caesarean delivery, and need for blood transfusion. Coagulopathy, admission to intensive care unit and renal failure were also observed. There was no case of maternal death. Immediate neonatal outcomes were fetal death (83.1%), prematurity (11.9%), early neonatal death (13.6%) and low APGAR score at 5th minute of life. **Conclusions:** A higher frequency of placenta abruption was observed. Hypertensive disorders in pregnancy was the main risk factor for placenta abruption. Many women with placenta abruption were left to deliver vaginally. Nearly 90% of placenta abruption cases had perinatal death .More efforts should be put in antenatal management of hypertensive disorders in pregnancy to prevent placenta abruption and its complications.

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INTRODUCTION

Placenta abruption is premature separation of the placenta before the fetus is born from the 20th week of pregnancy. It is a major cause of obstetric hemorrhage, with significant contribution to maternal morbidity and mortality and perinatal deaths (1) (2) (3). The risk factors for placenta abruption are all components leading to placenta insufficiency and impaired placentation, these include hypertensive disorders in pregnancy, grandmultiparity, multifetal gestation, premature rupture of membranes, history of previous Caesarean delivery, and cigarette smoking (4) (5) (6). Clinically placenta abruption presents as vaginal bleeding, abdominal pain that can progress to hemodynamic instability, and fetal distress or death (7). The most common maternal complications are clotting disorders, hemorrhagic shock and rarely maternal death.

Fetal complications are prematurity (spontaneous or induced) with its associated morbidity, intrauterine growth restriction and intrauterine fetal death (8) (9). Recent studies for placenta abruption are based on higher income countries population (1) (4) (9) (8). Local studies done in Uganda and Tanzania (10) (11) a decade ago, thus can not generalize the current situation in trends and the risk factors for placenta abruption. The objective of this retrospective review of the facility annual data is to spotlight the risk factors, presentation mode, management and immediate maternal and perinatal outcomes in our hospital setting.

MATERIALS AND METHODS

This retrospective observational study was conducted at Amana Regional Referral Hospital, Dar es Salaam, Tanzania, from

January 2023 to December 2023. Ethical clearance was obtained from the Hospital’s Local Ethical Review Committee. The files of all pregnant women diagnosed with placenta abruption were included in the study. Placenta abruption was diagnosed based on clinical presentation of abdominal pain, hypertonic, tense and tender uterus, vaginal bleeding and by local examination of the placenta after delivery for the presence of retroplacental clot.

Inclusion criteria: All pregnant women diagnosed with placenta abruption.

Exclusion criteria: All other cases of antepartum hemorrhage and women with gestational age < 28 weeks. Data were collected from maternal case note files and electronic hospital information database. Details on patient’s demographic and clinical characteristics were collected. Management received, mode of delivery, maternal and perinatal outcome findings were also recorded. The results of the study were presented in percentage and frequencies. Data were analyzed in SPSS version 23 software.

RESULTS

Table 1. Incidence of placenta abruption

	n = 159
Total number of deliveries	7750
Total number of abruption placenta	159
Incidence of placenta abruption	2.1%

Total number of deliveries in the study period was 7750 and abruption placenta cases were 159. An incidence of 2.1% cases of placenta abruption was observed.

Table 2. Demographic Characteristics

Characteristic	n	f
Age (years)		
<20	17	28.8
20-29	23	40.0
30-39	15	25.4
≥40	4	6.8
Gravidity		
1	8	13.5
2	29	49.2
3	14	23.7
4	6	10.2
5 and above	2	3.4
Gestational age (weeks)		
28 - 33 ⁺⁶	29	49.2
34 – 36 ⁺⁶	21	35.6
≥37	9	15.3

Table 3. Risk factors for placenta abruption

Risk factor	n	f
Severe pre-eclampsia and eclampsia	20	33.9
Chronic hypertension	12	20.3
Previous CS scar	8	13.6
Anemia	8	13.6
Abdominal trauma	2	3.4
Polyhydramnios	1	1.7
Grand multiparity	4	6.8
Multiple pregnancy	4	6.8

Severe pre-eclampsia and eclampsia cases contributed 33.9% followed by chronic hypertension 20.3%. history of previous

Caesarean delivery and anaemia (Hb < 10g/dl prior admission, during antenatal care) contributed 13.6% each while grand multiparity (more than four pregnancies) and multifetal gestation contributed 6.8% each. The least risk factor was having polyhydramnios 1.7%.

Table 4. clinical features

Clinical feature	n	f
Vaginal bleeding	50	84.7
Abdominal pain alone	6	10.2
Vaginal bleeding and abdominal pain	38	64.4
Absence of fetal kicks	37	62.7

Nearly 85% of women with placenta abruption presented with history of vaginal bleeding, 10.2 % presented with abdominal pain only while 64.4% presented with both vaginal and abdominal pain. 62.7% of women presented with absence of fetal kicks at the time of diagnosis.

Table 5. Maternal outcomes

Outcome feature	n	f
Caesarean delivery	20	33.9
Vaginal delivery	39	66.1
Postpartum hemorrhage	37	62.7
Blood transfusion	45	76.2
>3 units of transfusion	29	49.2
ICU admission	3	5.1
DIC	10	17.0
Renal failure	2	3.4

Majority of women with placenta abruption delivered vaginally (66.1%) while Caesarean delivery was 33.9%. Postpartum hemorrhage occurred in 62.7% and 76.2% of all women required blood transfusion with nearly half (49.2%) required more than 3 units of blood.

Table 6. Perinatal outcome

Outcome feature	n	f
FHR present on admission	21	35.6
Stillbirth	49	83.1
Fresh still birth	23	39.0
Macerated still birth	26	44.1
Livebirth	10	17.0
Early neonatal death	6	10.2
APGAR score <7 at 5 th min	8	13.6
Prematurity	7	11.9

Majority of fetuses were stillborn (83.1%), 39.0% being fresh stillbirth and 44.1% macerated stillbirth. Twenty one women (35.6%) had live fetuses on admission but livebirth occurred in only 10 women (17.0%), of which 8 cases (13.6%) had low APGAR score below 7 at the 5th minute of delivery. Fifty neonates (84.7%) were born prematurely and were admitted in neonatal unit.

DISCUSSION

The incidence of placenta abruption was 2.1% which is higher than reported in the population based study in immigrant compared to non immigrant in Norway, where the incidence in both immigrant and non immigrant was reported to be less than 1 % (12). Detailed annual data in a Polish tertiary center reported the incidence of 0.7%. Many other studies reported lower incidence of placenta abruption than ours (2) (3) (8) (13) (14) (15).

Our observed higher incidence might be due to higher frequency of preeclampsia /eclampsia and chronic hypertension cases that are referred from lower health facilities for delivery. Placenta abruption occurred more in women in the age group 20 -29 years (40%) in their second pregnancies (49.2%) below 37 weeks (49.2% between 28 to 33⁺⁶ and 35.6% between 34 to 36⁶). In Japanese general population teenage pregnancy was found to be a risk factor (16) while Dawn and Cande found that placenta abruption incidence increasing with increasing parity; 1.7% in first time pregnancy and 2.2% in second time pregnancy (17), Shabnam et al found higher incidence of placenta abruption in the second to fourth pregnancy (13) while Emma et al found decreasing incidence of placenta abruption with parity and maternal age above 35 years had increased risk for placenta abruption(6). Increased incidence with maternal age could be influenced by emergency of other risk factors like obesity and smoking. Other studies suggest reproductive age extremities (below 20 and above 35) are all risk factors (5) and others found incidence of placenta abruption not to be related with parity (9).

In our study severe pre-eclampsia and eclampsia cases contributed 33.9% followed by chronic hypertension 20.3%. history of previous Caesarean delivery and anaemia (Hb < 10g/dl prior admission, during antenatal care) contributed 13.6% each while grand multiparity (more than four pregnancies) and multifetal gestation contributed 6.8% each. The least risk factor was having polyhydramnios 1.7%. This is in consistency with many other studies (6) (8) (18) and additional risk factors of smoking, and previous history of placenta abruption were added (16) (17) (19) that was not documented in our retrospective study. In a retrospective descriptive case study in Dubai, diabetes mellitus was found to be the main risk factor which occurred in 26% of study population. There was no reported cases of diabetes mellitus in our study. Nearly 85% of women with placenta abruption presented with history of vaginal bleeding, 10.2 % presented with abdominal pain only while 64.4% presented with both vaginal and abdominal pain. Similar findings has been reported in other studies.62.7% of women presented with absence of fetal kicks at the time of diagnosis. This frequency is higher than that observed in other studies, our seems to present late to the hospital after onset of symptoms of placenta abruption. Some studies reported fewer women who presented with occult vaginal bleeding (8). Majority of women in our setting with placenta abruption delivered vaginally (66.1%) while caesarean delivery was 33.9%. Postpartum hemorrhage occurred in 62.7% and 76.2% of all women required blood transfusion with nearly half (49.2%) required more than 3 units of blood. In contrast to many other studies caesarean delivery is more prevalent in women with placenta abruption (twice to thrice) but the incidence of postpartum hemorrhage has been reported to be lower than ours (8) (13) (20). Majority of our fetuses were stillborn (83.1%), of which 39.0% being fresh stillbirth and 44.1% macerated stillbirth. This could be contributed to late presentation to the hospital by women following initial symptoms for placenta abruption. Twenty one women (35.6%) had live fetuses on admission but livebirth occurred in only 10 women (17.0%), of which 8 cases (13.6%) had low APGAR score below 7 at the 5th minute of delivery. Eleven percent of fetuses were born prematurely and admitted in neonatal unit. In other studies many fetuses are alive at the time of diagnosis of placenta abruption ranging from 45% to 65% and the incidence of still birth is lower compared to ours (8). This could be due to prompt decision to caesarean delivery and emergency

responsiveness once the diagnosis has been established to ensure good maternal and neonatal outcome.

CONCLUSION

This study concludes that appropriate monitoring and intervention measures to prevent hypertensive disorders in pregnancy during antenatal care could lower the incidence of placenta abruption. Increasing awareness in early healthcare seeking behaviour to women once they experience danger signs and prompt decision to caesarean delivery will reduce placenta abruption related morbidities to both mothers and their fetuses.

Limitation of the study: The study is retrospective observational, data were acquired from medical records in a single facility, the results might not be generalized. Statistical significance for risk factors could not be determined due to lack of control groups.

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