Pregnancy Outcome in Women with Early Pregnancy Bleeding in a Tertiary Health Care Facility in Southwestern, Nigeria

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Abstract

Background: Bleeding in early pregnancy is a common occurrence, but very little is known about the outcome of pregnancy complicated by bleeding during the early part of the gestation. This prompted me to explore these in a prospective cohort study over a period of 12 months. Objectives: The aim of this study is to determine the mode of presentation and the materno-fetal outcome in pregnancies complicated by early pregnancy bleeding and compare with a group without such complication. Materials and Methods: A total of 72 cases were observed and these patients were matched with a control group in maternal age in years (+2), parity and gestational ages in weeks. Results: Pregnancy loses or abortions occurred in 12 patients (16.6%) in the study group compared with 3 patients (4.1%) in the control group (P < 0.05), 14 patients (19.4%) had preterm deliveries in the study group, compared with four patients (5.5%) in the control group (P < 0.05) and low birth weight was observed in 15 patients (20.83%) among the study group compared with 5 patients (6.94%) in the control group (P < 0.05). All the three outcome measures above had statistically significant differences when compared in between the two groups. These poor outcomes were observed among those who bled in the second trimester, those who had episodes of bleeding in both the first and the second trimesters or recurrent vaginal bleeding throughout the pregnancy. Conclusion: The outcome of this study showed that bleeding in early pregnancy, especially during the second trimester or recurrent bleeding in both the first and the second trimesters correlates with poor pregnancy outcomes.

Keywords: Abruptio placentae, Apgar scores, low birth weight, placenta praevia, preterm delivery, threatened miscarriage

Introduction

Bleeding during the first 20 weeks of pregnancy is very common and poses significant threats to the developing embryo or the fetus with possible poor maternal outcome.[1,2] Various incidences of bleeding in early pregnancy has been reported by different authors from different centers. In general, the reported incidences ranged between 12% and 40%.[1,3-9] These studies showed high rates of pregnancy losses or abortions, preterm births, low-birth weight, and neonatal mortality.[10,11] Most of these studies were either retrospective and often times were only interview-based studies. Furthermore, no such study has been carried out in this environment. Similar studies carried out on patients who achieved pregnancies following assisted reproductive technique showed that bleeding in early singleton pregnancy increases the risk for poor pregnancy outcome.[12]

In this study, the patients and their matched controls were followed till the end of the pregnancies and their babies till 4 weeks after delivery. The outcome measures considered in this study were prematurity, miscarriages or abortion, low-birth weight (LBW), birth asphyxia, perinatal mortality, antepartum hemorrhages (APHs) such as abruptio placentae and placenta praevia, primary postpartum hemorrhage, cesarean section rate, perinatal mortality, and congenital anomaly.

Materials and Methods

This prospective cohort study was carried out in the Department of Obstetrics and Gynaecology, State Specialist Hospital Asubiaro, Osogbo. Osun State, Nigeria. A total of 72 pregnant women of gestational ages <20 weeks that presented with significant bleeding per vaginam between January and December 2014 were recruited into the study population. The

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definition for significant vaginal bleeding during pregnancy, in this study was any vaginal bleeding that requires the use of at least one sanitary pad per day. These patients were matched in maternal age in years (+2), parity and gestational ages in weeks with controls and were followed-up till the end of the pregnancies and the babies 4 weeks after deliveries.

The two groups had obstetric ultrasound scans and serum pregnancy test depending on the gestational ages to confirm pregnancy, to make definitive diagnoses and to exclude those with the potential risk to good pregnancy outcome. It was a difficult task to get controls for those women that bled at the gestational ages of between 6 and 10 weeks because very few women book their pregnancy at these gestational ages in this environment. At presentation, sterile speculum vaginal examinations were carried out to exclude cervical pathologies such as cervical erosion or cervical cancer and to arrive at definitive diagnoses.

During the selection of the cases and the controls, patients with factors that may affect the outcome of pregnancies were excluded from the study. These includes clinical features of inevitable or incomplete abortion, previous management or diagnosis of cervical incompetence, recurrent chronic medical conditions such as hypertension, renal or other heart diseases, grand multiparity, assisted conceptions, sickle cell disease patients, multiple gestations, maternal height <1.5 m, uterine fibroids coexisting with pregnancy (diameter >5 cm) and previous uterine scars such as myomectomy and cesarean section.

The patients were adequately counseled and an informed verbal consent obtained from each of them before recruitment into the study.

The information from these patients during the antenatal period, intrapartum and puerperium were documented in structured obstetric data sheets. The data were analyzed with a personal computer, using the SPSS version 20.0 (SPSS IBM Corp, Armonk, NY) and GraphPad Instat 3 (GraphPad Software Inc., San Diego, CA). Chi-square tests were used to assess associations between the groups.

**Results**

In this study, the mean maternal age for the study and control groups was 31.4 ± 4.7 and 30.56 ± 3.9 years, respectively (P > 0.05). The mean parity was 2.3 ± 1.4 for the study group and 2.5 ± 1.7 for the control group (P > 0.05). The mean gestational age at presentation in the hospital, when bleeding occurred was 12.8 ± 1.71 weeks for the study group and 12.6 ± 1.48 weeks for the control group (P > 0.05). When the two groups were compared, there was no statistically significant difference in terms of age, parity, and gestational age at presentation.

Table 1 compares the outcome measures in between the study group and the controls. There were statistically significant differences between the groups in terms of miscarriages (12 [16.67%] vs. 3 [4.10%] P < 0.05), preterm deliveries (14 [19.4%] vs. 4 [5.5%] P < 0.05) and LBW (15 [20.83%] vs. 5 [6.94%] P < 0.05).

A case of intraventricular fetal death was recorded in the control group, due to umbilical cord accident, two patients (2.78%) in the study group had APH secondary to placenta praevia and had cesarean sections. Two patients (2.78%) also had APH in the control group; 1 (1.39%) was due to placenta praevia and 1 (1.39%) due to mild abruptio placentae. They both had emergency cesarean sections. A case of congenital malformation (polydactyl) was seen among the control group.

Forty-nine (68.1%) of the 72 patients in the study group presented with first-trimester bleeding, whereas 23 patients (31.9%) presented with second trimester bleeding. Five patients (6.94%) bled twice and 1 (1.3) had recurrent bleeding, alternating with spotting per vaginam throughout the pregnancy and had cesarean section for placenta praevia at 36 weeks gestation.

Table 2 compares the outcome measures with the trimesters at which the bleeding occurred. There were statistically significant

### Table 1: Comparison of the outcome measures in the study population with the control group

| Parameters                     | Cases (%) | Controls (%) | P   |
|--------------------------------|-----------|--------------|-----|
| Mean duration of pregnancy     | 25 (23)   | 27 (19)      | >0.05 |
| Abortions/miscarriages         | 12 (16.67)| 3 (4.1)      | <0.05*|
| Preterm deliveries             | 14 (19.4)| 4 (5.5)      | <0.05*|
| LBW                            | 15 (20.83)| 5 (6.94)     | <0.05*|
| Birth-asphyxia (Apgar score <6)| 7 (9.72)  | 6 (8.33)     | >0.05 |
| Perinatal mortality            | 1 (1.39)  |              | >0.05 |
| APH                            | 2 (2.78)  | 2 (2.78)     |       |
| Primary PPH                    | 4 (5.56)  | 5 (6.94)     | >0.05 |
| Cesarean section               | 5 (6.94)  | 4 (5.56)     | >0.05 |
| Congenital malformations       | 1 (1.39)  |              | >0.05 |

*Statistically significant. LBW: Low-birth weight, PPH: Postpartum hemorrhage, APH: Antepartum hemorrhage

### Table 2: Comparison of gestational ages (trimesters) at bleeding with pregnancy outcome

| Outcome measures | 1st trimester bleeding (%) | 2nd trimester bleeding (%) | P    |
|------------------|----------------------------|---------------------------|------|
| Abortions/miscarriages | 2 (16.67)                     | 10 (83.33)                | <0.05*|
| LBW               | 3 (20.00)                     | 12 (80.00)                | <0.05*|
| Preterm deliveries | 1 (7.14)                      | 13 (92.86)                | <0.05*|
| Birth-asphyxia    | 3 (42.86)                     | 4 (57.14)                 | >0.05 |
| Perinatal mortality| 1 (50)                       | 1 (50)                    |      |
| APH               | 2 (50)                       | 2 (50)                    |      |
| Primary PPH       | 3 (60)                       | 2 (40)                    | >0.05 |
| Cesarean sections | 20 (26.67)                    | 44 (61.11)                | <=0.05*

*Statistically significant. LBW: Low-birth weight, APH: Antepartum hemorrhage, PPH: Postpartum hemorrhage
differences between the groups in terms of miscarriages (2 [16.67%] vs. 10 [83.33%] \(P < 0.05\)), LBWs, (3 [20.00%] vs. 12 [80.00%]; \(P < 0.05\)), and preterm deliveries (1 [7.14%] vs. 13 [92.86%] \(P < 0.05\)). Thus, bleeding in the second trimester is more associated with poor pregnancy outcomes.

Three (4.17%) of the 72 patients in the study group and 2 (2.78%) of the control group were lost to follow-up after the gestational ages of 36 weeks.

In this study, of the 12 cases of miscarriages seen during the followed-up period, 5 (41.67%) had missed abortions, 4 (33.33%) had incomplete abortions and 3 (25%) had complete abortions. Two of the cases of the complete abortions occurred in the first trimester. In the control group, three cases of miscarriages were also seen and they all presented with incomplete abortions and had evacuation of retained products of conception.

**DISCUSSION**

Bleeding in early pregnancy refers to obstetrical hemorrhage before 20 completed weeks of gestational age.\(^{[13]}\) Vaginal bleeding occurs in 12%–40% of confirmed pregnancies during the first 20 weeks of gestation as reported by many authors.\(^{[1,3‑9]}\) Of these, 50% end in spontaneous abortions.\(^{[3]}\) Various authors have reported a significant association between early bleeding in pregnancy and poor or sub-optimal pregnancy outcomes.\(^{[11‑14]}\) However, most of these studies took into consideration, only the first-trimester bleeding. Contrarily, the rate of pregnancy loss in this study was 16.67%, which was quite lower than the above-quoted values but was similar to what was reported by Ahmed et al. in Al Qassim, Saudi Arabia.\(^{[15]}\)

Majority of the patients in this study presented within the first trimester of the pregnancies with bleeding episodes. Forty-nine patients (68.10%) presented in the first trimester and 23 (31.90%) presented in the second trimester. These were similar to the reports from other centers, although the exact rates may be different, all of them showed similar pattern.\(^{[5,16]}\)

Of the 12 patients whose pregnancies resulted in miscarriages in the study group, 10 (83.33%) were from those with the second trimester bleeding and 2 (16.67%) from those with the first-trimester bleeding (\(P < 0.05\)). Thus, second trimester bleeding is more associated with pregnancy losses. This is consistent with most of the earlier published reports.\(^{[5,16]}\)

In this study, the number of preterm deliveries was 14 (19.4%) and 4 (5.5%) in the study and the control groups, respectively (\(P < 0.05\)). Thus, there is a correlation between early pregnancy bleeding and preterm delivery. All the preterm births occurred between 34 and 36 weeks gestational ages. This was slightly lower than what were reported in similar studies.\(^{[8,13,16,17]}\) Strobino et al. reported an incidence of 21.2% among the study group, which was slightly higher. When the preterm deliveries were compared with the trimesters at which they occurred in this study 1 (7.14%) versus 13 (92.86%) \(P < 0.05\), for the first- and second-trimesters bleeding respectively, it showed that bleeding in the second trimester of pregnancy is more associated with preterm delivery than the bleeding in the first trimester. This is consistent with the earlier reports from similar studies.\(^{[5,16]}\)

The total number of LBW seen were 15 (20.83%) and 5 (6.94%); \(P < 0.05\) for both the cases and the controls, respectively, and showed a strong relationship between early-pregnancy bleeding and LBW. Similarly, most of the LBW cases were observed among those with the second-trimester bleeding.\(^{[5,16]}\)

Analysis of the other outcome measures in the study, such as birth asphyxia, perinatal mortality, APH, cesarean section rate, and congenital anomaly did not show any relationship with bleeding in the early pregnancy. Although the result of the meta-analysis of the 14 studies on the maternal and perinatal outcomes in women with threatened miscarriages in the first-trimester by Saraswat et al. showed an association between threatened miscarriages, preterm delivery, intrauterine growth restriction, and higher rate of perinatal mortality. Similarly, earlier meta-analysis by Ananth and Savitz reported that early-pregnancy bleeding is associated with adverse pregnancy outcomes, but that more standardized definitions of vaginal bleeding are required for future studies.\(^{[17,18]}\)

In this study, of the 72 cases recruited into the study, 66 (91.67%) had a single episode of bleeding, 5 (6.94%) bled twice, and 1 (1.39%) had recurrent bleeding with episodes of spotting per vaginam throughout the pregnancy. All the cases with two episodes of bleeding and the one with recurrent bleeding episodes had poor pregnancy outcomes. Thus, recurrent vaginal bleeding is a predictor of poor pregnancy outcome. Contrarily, higher rates were reported in other studies for those who bled twice and for recurrent vaginal bleeding.\(^{[19]}\) Hasan et al. reported values of 70.9% for single episode of bleeding, 20.0% for two episodes and 9.1% for those with three or more episodes. They, however, reported that heaviness of the bleeding and abdominal pains are more important, followed by the duration of bleeding and that the number of episodes and color of bleeding have little importance on pregnancy outcome.

It was difficult for us to quantify the amount of blood loss before the presentation, because patient’s assessments of blood loss were subjective and thus, we could not determine the relationship between the quantity of blood loss and pregnancy outcome.

**CONCLUSION**

It was discovered in this study that, second-trimester vaginal bleeding and repeated episodes of vaginal bleeding in early pregnancy are associated with miscarriages, preterm deliveries, and LBWs. However, there was no significant relationship between early-pregnancy bleeding and birth asphyxia, perinatal mortality, APH due to placental praevia or abruptio placentae, cesarean section rate, and congenital anomaly. However, a larger population or a multicenter study is required to further
evaluate the effect of early-pregnancy bleeding on pregnancy outcome in this environment.

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Conflicts of interest
There are no conflicts of interest.

REFERENCES
1. Wu YH. Spontaneous abortions. In: Bader JT, editor. Obstetrics/Gynaecology Secrets. 3rd ed., Vol. 18. Philadelphia, Pennsylvania: Elsevier Mosby; 2005. p. 100-5.
2. Arias F, Daftary NS, Bhide A, editors. Bleeding during pregnancy. In: Practical Guide to High-Risk Pregnancy and Delivery. A South Asian Perspective. 3rd ed., Vol. 13. Noida, India: Elsevier India Private Ltd.; 2009. p. 323-57.
3. Klufio CA. Abortion. In: Kwawukume YE, Emuveyan EE, editors. Comprehensive Obstetrics in the Tropics. Vol. 31. Dansoman, Ghana: Asante and Hittscher Printing Press Ltd.; 2002. p. 226-42.
4. Uzelac SP, Garmel HS. Early pregnancy risks. In: Decherney HA, Nathan L, Goodwin MT, Neri L, editors. Current Diagnosis and Treatment, Obstetrics and Gynaecology. 10th ed., Vol. 14. New York: McGraw Hill Medical Publishing Division; 2007. p. 259-73.
5. Karim SA, Bakhtawar I, Butta AT, Jalil M. Effects of first and second trimester vaginal bleeding on pregnancy outcome. J Pak Med Assoc 1998;48:40-2.
6. Harville EW, Wilcox AT, Baird DD, Weinberg CR. Vaginal bleeding in very early pregnancy. Oxf J Med Health Hum Reprod 2003;18:1944-7.
7. Velez-Edwards DR, Baird DD, Hasan R, Savitz DA, Hartmann KE. First-trimester bleeding characteristics associated with increased risk of preterm birth: Data from a prospective pregnancy cohort. Oxf J Med Health Hum Reprod 2012;27:54-60.
8. Strobino B, Pantel-Silverman J. Gestational vaginal bleeding and pregnancy outcome. Am J Epidemiol 1989;129:806-15.
9. Araf M, Abdel-Fatah M, Zeid HA, El-Khouly A. Outcomes of pregnancies complicated by early vaginal bleeding. East Mediterr Health J 2000;6:457-64.
10. Johns J, Lainiaux E. Threatened miscarriage as a predictor of obstetric outcome. Obstet Gynecol 2006;107:845-50.
11. Mustafa G, Khushid R, Mushq, ul Shamas I, Mis S. Pregnancy outcome of patients complicated by threatened abortion. Internet J Gynecol Obstet 2009;14:6932.
12. De Sutter P, Bontinck J, Schutysers V, Van der Elst J, Gerris J, Dhont M, et al. First-trimester bleeding and pregnancy outcome in singletons after assisted reproduction. Hum Reprod 2006;21:1907-11.
13. Hemorrhage in early pregnancy, unspecified. ICD-10-CM 2016, Chapter 15; Code O20.9. Section O20-O29. MeSH Code: DO11248.
14. Williams MA, Mittendorf R, Lieberman E, Monson RR. Adverse infant outcomes associated with first-trimester vaginal bleeding. Obstet Gynecol 1991;78:14-8.
15. Ahmed SR, El-Sammani Mel-K, Al-Sheeha MA, Aitaallah AS, Jabin Khan F, Ahmed SR, et al. Pregnancy outcome in women with threatened miscarriage: A year study. Mater Sodemi 2012;24:26-8.
16. Sipilä P, Hartikainen-Sorri AL, Oja H, Von Wondt L. Perinatal outcome of pregnancies complicated by vaginal bleeding. Br J Obstet Gynaecol 1992;99:959-63.
17. Ananth CV, Savitz DA. Vaginal bleeding and adverse reproductive outcomes: A meta-analysis. Paediatr Perinat Epidemiol 1994;8:62-78.
18. Saraswat L, Bhattacharya S, Maheshwari A, Bhattacharya S. Maternal and perinatal outcome in women with threatened miscarriage in the first trimester: A systematic review. BJOG 2010;117:245-57.
19. Hasan R, Baird DD, Herring AH, Olshan AF, Jonsson Funk ML, Hartmann KE, et al. Association between first-trimester vaginal bleeding and miscarriage. Obstet Gynecol 2009;114:860-7.