

STUDY OF PERINATAL OUTCOME IN PATIENTS PRESENTING WITH FIRST TRIMESTER BLEEDING

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ABSTRACT

First trimester is very crucial period of pregnancy having high risks of pregnancy losses. The occurrence of first trimester bleeding is approximately 25% of all pregnancies. Vaginal bleeding in first trimester is a common complaint. Among these 200 patients, 19% patients aborted. Ectopic and molar pregnancy was seen in 5% and 1.5% patients respectively. Healthy fetus was present in 74.5% cases. Among abortion, missed abortion was seen in 9%, inevitable abortion in 2%, incomplete abortion in 7.5%, and complete abortion occurred in 0.5% cases. Fetal outcome included LBW (28.19%), preterm delivery (21.48%), IUGR (13.42%), fetal distress (11.41%), MSAF (7.38%), malpresentation (2.01%), congenital anomaly (1.34%), IUD and still birth (0.67% each). Neonatal outcome included NICU admission (12.08%), birth asphyxia (5.36%), RDS (4.03%), neonatal sepsis and neonatal jaundice (1.34% each). We concluded that patients with first trimester bleeding are at increased risk for spontaneous pregnancy loss and adverse fetal outcomes like preterm, intrauterine growth restriction, low birth weight, fetal distress, NICU admission and rarely congenital malformation where as there was no significant increase in perinatal mortality. So by knowing the etiology and fetal outcome of first trimester vaginal bleeding, we can predict the complications which will occur in later pregnancy and manage it properly.

KEYWORDS: First Trimester, Vaginal Bleeding, Abortions, Perinatal Outcome

First trimester bleeding complicates 16 to 25% of all pregnancies (Evrenos *et al.*, 2014). About half of these will end in miscarriage within 20 weeks of gestation (Hasan *et al.*, 2009), and those women who remain pregnant have an increased risk of developing other complications later in pregnancy (van Oppenraaij *et al.*, 2009; Saraswat *et al.*, 2010).

Bleeding can be in the form of spotting, light or heavy bleeding. Spotting is bleeding reported by the patient as scant or traces of blood or visualized by clinician as scant or no blood in vagina and at the cervix. Light bleeding is reported by the patient as like a 'menses'. It is visualized by the clinician as a small amount of blood in vagina or at the cervix. Heavy bleeding is reported by the patient as more than a 'menses'. It is visualized as a moderate to heavy amount of blood in vagina or at the cervix.

A spectrum of causes for the first trimester bleed has been identified ranging from miscarriage (threatened, inevitable, complete or incomplete), missed abortion, implantation of pregnancy, gestational trophoblastic disease and ectopic gestation. About 15% of pregnancies get complicated by threatened miscarriage. In first trimester pregnancies complicated by bleed, less than 50% progress normally beyond 20 weeks of gestation, 30% miscarry, 10 to 15% will be ectopic pregnancy, approximately 5% women elect to terminate the

pregnancy and 0.2% will be a hydatidiform mole (Williams *et al.*, 1991). Bleeding in the first trimester can originate from the uterus, cervix, or vagina, or it can be extragenital. Thorough physical examination is essential to differentiate between genital and extragenital causes. Extragenital causes should be ruled out by speculum examination. Bimanual examination of the uterus will determine whether the uterine size is consistent with the clinical dating. A large uterus may indicate hydatidiform mole, whereas a small uterus suggest a blighted ovum. The presence of a tender adnexal mass suggests an ectopic pregnancy (Fernando, 1993). First trimester bleeding may appear as implantation bleeding, threatened abortion, inevitable abortion, incomplete abortion, complete abortion, missed abortion, gestational trophoblastic disease and ectopic pregnancy. Diagnosis of bleeding per vaginam is made depending upon the history, general condition of the patient and investigations like maternal blood and urine levels of hormones like progesterone, human chorionic gonadotropin (hCG) and ultrasonography. The clinical diagnosis of threatened miscarriage is presumed when a bloody vaginal discharge or bleeding appears through a closed cervical os during the first half of pregnancy (Cunningham *et al.*, 2010). The diagnosis is confirmed by ultrasonic presence of an intrauterine gestational sac with cardiac activity. Ultrasonography is a safe and noninvasive diagnostic technique, which helps in timely diagnosis of bleeding

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per vaginum in first trimester. It should be done as a routine investigation in all the patients with complaint of bleeding per vaginum in the first trimester. It gives a clue of viability or non-viability of pregnancy, which can be terminated without undue delay (Jasoliya and Bhatia, 2017). Ultrasonography may show subchorionichematoma defined as a crescent shaped echo free area between the chorionic membrane and the myometrium (Mantoni and Pedersen, 1981). Bleeding during pregnancy can cause maternal anxiety and emerging evidence suggests that it may be associated with poor fetal and maternal outcomes (Weiss *et al.*, 2004; Wijesiriwardana *et al.*, 2006; Dadkhah *et al.*, 2010). Early weeks (4-12 weeks) pregnancy is the period of organogenesis. Various factors may disturb the pregnancy during this period, which has subsequent effect on obstetric outcome. About 20 to 30% pregnancies are lost during early weeks. Patients with vaginal bleeding, light or heavy are more likely to experience spontaneous loss before 24 weeks of gestation (odds ratio 2.5 and 4.2 respectively). First trimester vaginal bleeding is an independent risk factor for adverse obstetric outcome that is directly proportional to the amount of bleeding (Weiss *et al.*, 2004). There is increased risk of suboptimal pregnancy outcome in the form of preterm delivery, low birth weight and unexplained intrauterine death in these cases (Arfa *et al.*, 2000).

The present observational, one-year study was conducted in the Department of Obstetrics and Gynaecology, SMGS Hospital, Government Medical College, Jammu to find out perinatal outcome in patients with first trimester bleeding.

MATERIALS AND METHODS

This study was conducted on pregnant women attending SMGS Hospital, Government Medical College, Jammu, both on OPD basis as well as admitted in wards on two days in a week i.e. Wednesday and Saturday from November 2016 to October 2017 after approval from Institutional Ethical Committee. 200 pregnant women fulfilling inclusion criteria were enrolled into the study.

Inclusion Criteria

- Amenorrhea of ≤ 3 months
- Positive pregnancy test
- Bleeding per vaginum

Exclusion Criteria

- All patients with more than 12 completed weeks of pregnancy.
- Patient with missed, incomplete and complete abortion.
- Local causes of bleeding like vaginal tear, cervical tear, cervical lesions like erosion, ectropion, polyp, myoma, infection and malignancy.
- Diabetes, Hypertension, cardiovascular diseases, hepatic diseases and hematological disorders.

All the women presenting with vaginal bleeding during the first trimester were enrolled into the study after taking written informed consent. A detailed obstetrical and medical history taken. A structured proforma was prepared. Detailed history was taken regarding the age of pregnancy at the time of bleeding, amount, duration of bleeding, number of episodes and associated pain. Then thorough examination was done including general physical, systemic and obstetric examination. Routine antenatal investigations were done. Ultrasound for fetal viability and placental localization was done. Patients with spotting or light bleeding were followed on OPD basis. Patients with heavy bleeding were admitted in hospital. Patients then offered treatment according to etiology. Patients were kept under surveillance until end of pregnancy and consequences of pregnancy were evaluated by close observation on the process of pregnancy. All women were evaluated for outcomes including abortion, termination, ectopic pregnancy, molar pregnancy and various other adverse perinatal outcomes like preterm delivery, IUGR, LBW, fetal distress, meconium stained amniotic fluid, birth asphyxia, RDS, neonatal jaundice, neonatal sepsis and perinatal mortality.

The data was analyzed using computer software Microsoft Excel and SPSS version 21.0 for Windows. Data reported as mean \pm standard deviation and proportions as deemed appropriate for quantitative and qualitative variables respectively. The qualitative data was compared using Fisher's exact test. A p-value of <0.05 was considered as statistically significance. All p-values reported were two-tailed.

RESULTS

Majority of patients were in the age group of 21-30 years (75%). Mean age of the patients was 28.66 with a range of 20-40 years. Majority of patients were multigravida (58%) and primigravida were 42%. Out of 200 patients with first trimester bleeding, 26% patients had previous history of abortion. Gestational age at

bleeding was 8 weeks in 48.50% patients, <6 weeks in 34.50% patients and 10 weeks in 17% patients. Mean gestational age at bleeding was 7.62 with a range of 3 to 10 weeks. Majority of patients (61%) presented with spotting, followed by light bleeding (29%) and heavy bleeding (10%). In our study, only 16% patients had history of associated pain. Majority of patients (84.5%) had duration of bleeding \leq 5 days while duration of bleeding $>$ 5 days was present in 15.5% patients. Majority of patients (74.5%) presented with one episode of bleeding followed by two episodes (23.5%) and three episodes (2%) of bleeding. History of threatened abortion in

previous pregnancy was present in 9% patients. USG findings in first trimester were low lying placenta in 13% patients, large subchorionic hematoma (SCH) in 10.50% patients, small SCH in 9%, ectopic pregnancy in 5% and hydatiform mole in 1.50% patients.

PREGNANCY OUTCOME

Healthy fetus was found in 74.5% and remaining 25.50% patients presented with either ectopic or molar pregnancy; incomplete, complete, inevitable or missed abortion in 1st trimester; incomplete, inevitable or missed abortion in 2nd trimester.

Table 1: Distribution of patients according to age (n=200)

Age group (in years)	Number of patients (No.)	Percentage (%)
<20	2	1.00
21 – 25	33	16.50
26 – 30	117	58.50
31 – 35	45	22.50
36 – 40	3	1.50
Total	200	100.00
Mean age in years \pm Standard deviation (Range)	28.66 \pm 3.48 (20 – 40)	

Table 2: Distribution of patients according to parity (n=200)

Parity	Number of patients (No.)	Percentage (%)
Primigravida	84	42.00
Gravida 2	60	30.00
Gravida 3	37	18.50
Gravida 4 and 5	19	9.50
Total	200	100.00

Table 3: Multigravida patients with previous history of abortion (n=116)

No. of abortion	Gravida 2 (n=60) No. (%)	Gravida 3 (n=37) No. (%)	Gravida 4 and 5 (n=19) No. (%)
One	16 (26.67)	18 (48.65)	6 (31.58)
Two	–	3 (8.11)	7 (36.84)
Three	–	–	–
Four	–	–	2 (10.53)
Total	16 (26.67)	21 (56.76)	15 (78.95)

Table 4: Distribution of patients according to type of bleeding (n=200)

Type of bleeding	Number of patients (No.)	Percentage (%)
Spotting	122	61.00
Light	58	29.00
Heavy	20	10.00
Total	200	100.00

Table 5: Distribution of patients according to gestational age at bleeding (n=200)

Gestational age at bleeding (weeks)	Number of patients (No.)	Percentage (%)
<6	69	34.50
8	97	48.50
10	34	17.00
Total	200	100.00
Mean gestational age at bleeding ± Standard deviation (Range)	7.62 ± 1.44 (3 – 10) weeks	

Table 6: Distribution of patients according to associated pain (n=200)

Associated pain	Number of patients (No.)	Percentage (%)
Yes	32	16.00
No	168	84.00
Total	200	100.00

Table 7: Distribution of patients according to duration of bleeding (n=200)

Duration of bleeding (days)	Number of patients (No.)	Percentage (%)
<5	169	84.50
>5	31	15.50
Total	200	100.00

Table 8: Distribution of patients according to number of episodes of bleeding (n=200)

Number of episodes of bleeding	Number of patients (No.)	Percentage (%)
One	149	74.50
Two	47	23.50
Three	4	2.00
Total	200	100.00

Table 9: Distribution of patients according to history of threatened abortion in previous pregnancy (n=200)

H/o threatened abortion in previous pregnancy	Number of patients (No.)	Percentage (%)
Yes	18	9.00
No	182	91.00
Total	200	100.00

Table 10: Distribution of patients according to findings of ultrasonography in first trimester (n=200)

Findings of USG in first trimester	Number of patients (No.)	Percentage (%)
Low lying placenta	26	13.00
Large SCH	21	10.50
Small SCH	18	9.00
Ectopic pregnancy	10	5.00
Hydatiform mole	3	1.50

Table 11: Distribution of patients according to pregnancy outcome (n=200)

Pregnancy outcome	Number of patients (No.)	Percentage (%)
Healthy fetus	149	74.5
Ectopic pregnancy	10	5.00
1 st trimester incomplete abortion	9	4.50
1 st trimester missed abortion	9	4.50
2 nd trimester missed abortion	9	4.50
2 nd trimester incomplete abortion	6	3.00
1 st trimester inevitable abortion	3	1.50
Molar pregnancy	3	1.50
2 nd trimester inevitable abortion	1	0.50
1 st trimester complete abortion	1	0.50
Total	200	100.00

Table 12: Distribution of fetal outcome in the study (n=149)

Fetal outcome	Number of patients (No.)	Percentage (%)
Full term delivery	117	78.52
Low birth weight	42	28.19
Preterm delivery	32	21.48
IUGR	20	13.42
Fetal distress	17	11.41
MSAF	11	7.38
Malpresentation	3	2.01
Congenital anomaly	2	1.34
IUD	1	0.67
Still birth	1	0.67

Fetal outcome included LBW (28.19%), preterm delivery (21.48%), IUGR (13.42%), fetal distress (11.41%), MSAF (7.38%), malpresentation (2.01%), congenital anomaly (1.34%), IUD and still birth (0.67% each).

In one fetus, more than one adverse outcome was present (fetal distress, meconium stained amniotic fluid).

Table 13: Distribution of neonatal outcome in the study (n=149)

Neonatal outcome	Number of patients (No.)	Percentage (%)
Normal outcome	132	87.9
Birth asphyxia	8	5.36
Respiratory distress syndrome	6	4.03
Neonatal sepsis	2	1.34
Neonatal jaundice	2	1.34
NICU admission	25	16.78

Neonatal outcome included NICU admission (16.78%), birth asphyxia (5.36%), RDS (4.03%), neonatal sepsis and neonatal jaundice (1.34% each).

Table 14: Distribution of neonates according to birth weight (n=149)

Neonate birth weight (kg)	Number of patients (No.)	Percentage (%)
<1.5 (very low birth weight)	2	1.34
1.5 – 2.49 (low birth weight)	40	26.85
2.50 – 4 (normal weight)	107	71.81
Total	149	100.00
Mean birth weight ± Standard deviation (Range)	2.62 ± 0.48 (1 – 4) kg	

Low birth weight neonates were 28.19% including two with 1 kg weight in the study. Rest (71.81%) all were normal weight babies.

Table 15: Distribution of neonates according to Apgar score (n=149)

Apgar score	Number of patients (No.)	Percentage (%)
<7	16	10.74
>7	133	89.26
Total	149	100.00

Majority of neonates (89.26%) had Apgar score of 7 or more. Sixteen (10.74%) neonates had Apgar score of less than 7.

Table 16: Relationship of type of bleeding with USG findings in first trimester (n=200)

USG findings in first trimester	Type of bleeding			Statistical inference (Fisher's exact test)
	Spotting (n=122) No. (%)	Light (n=58) No. (%)	Heavy (n=20) No. (%)	
Low lying placenta	16 (13.11)	5 (8.62)	5 (25.00)	p=1.00**
Large SCH	7 (5.74)	12 (20.69)	2 (10.00)	p=0.008*
Small SCH	6 (4.92)	9 (15.52)	3 (15.00)	p=0.02*
Ectopic pregnancy	7 (5.74)	3 (5.17)	–	p=0.74**
Hydatiform mole	–	3 (5.17)	–	–

*Significant; ** Not significant

Number of low lying placenta in patients with spotting were comparable in those with light and heavy bleeding (p=1.00). Large and small SCH were significantly (p=0.008 and p=0.02 respectively) less in patients with spotting as compared to those with light and heavy bleeding.

Number of ectopic pregnancies in patients with spotting were comparable with those of light and heavy bleeding (p=0.74).

Table 17: Relationship of type of bleeding with pregnancy outcome (n=200)

Pregnancy outcome	Type of bleeding			Statistical inference (Fisher's exact test)
	Spotting (n=122) No. (%)	Light (n=58) No. (%)	Heavy (n=20) No. (%)	
Full term	88 (72.13)	20 (34.48)	9 (45.00)	p<0.0001*
Preterm	10 (8.19)	21 (36.21)	1 (5.00)	p=0.0003*
1 st trimester abortions	8 (6.56)	5 (8.63)	9 (45.00)	p=0.01*
2 nd trimester abortions	9 (7.38)	6 (10.34)	1 (5.00)	p=0.79**
Ectopic pregnancy	7 (5.74)	3 (5.17)	–	p=0.74**
Molar pregnancy	–	3 (5.17)	–	–
Total	122	58	20	

*Significant; ** Not significant

Full term pregnancy was present in more patients with spotting as compared to those with light and heavy bleeding, the difference being statistically significant ($p < 0.0001$).

Preterm delivery was significantly ($p = 0.0003$) less in patients with spotting as compared to those with light and heavy bleeding.

1st trimester abortions were also significantly ($p = 0.01$) less in patients with spotting as compared to those with light and heavy bleeding.

2nd trimester abortions and ectopic pregnancies were comparable in patients with spotting with those of light and heavy bleeding.

Table 18: Relationship of type of bleeding with fetal outcome (n=149)

Fetal outcome	Type of bleeding		p-value
	Spotting (n=98) No. (%)	Light/Heavy (n=51) No. (%)	
Low birth weight	22 (22.45)	20 (39.21)	0.031
IUGR	11 (11.22)	9 (17.65)	0.232
MSAF	6 (6.12)	5 (9.80)	0.364
Malpresentation	1 (1.02)	2 (1.96)	0.592
IUD	0	1 (1.96)	-
Congenital anomaly	2 (2.04)	0	-
Fetal distress	6 (6.12)	11 (21.57)	<0.0001

Adverse fetal outcomes like LBW and fetal distress were present significantly more in patients with light/heavy first trimester bleeding.

Other fetal outcomes were comparable in patients with spotting and in patients with light/heavy bleeding.

Table 19: Relationship of type of bleeding with birth weight (n=149)

Neonate birth weight (kg)	Type of bleeding		Statistical inference (Fisher's exact test)
	Spotting (n=98) No. (%)	Light/Heavy (n=51) No. (%)	
<2.49 (low birth weight)	18 (18.37)	24 (47.06)	p=0.0004; Significant
>2.50 (normal weight)	80 (81.63)	27 (52.94)	

Neonate birth weight was <2.49 kg (LBW) in 18.37% babies with spotting and 47.06% babies with light/heavy bleeding. Neonate birth weight >2.50 kg was present in 81.63% babies with spotting and 52.94% babies with light/heavy bleeding. The difference between neonate birth weight groups was statistically significant ($p = 0.0004$).

Table 20: Relationship of type of bleeding with Apgar score (n=149)

Apgar score	Type of bleeding		Statistical inference (Fisher's exact test)
	Spotting (n=98) No. (%)	Light/Heavy (n=51) No. (%)	
<7	9 (9.18)	7 (13.73)	p=0.41; Not significant
≥7	89 (90.82)	44 (86.27)	

Apgar score in patients with spotting and in patients with light/heavy bleeding was similar. There was statistically no significant difference between Apgar score <7 and >7 ($p = 0.41$).

DISCUSSION

Maternal Characteristics

In our study, majority of patients (75 %) were in age group of 21-30 years, 24% were above 30 years and 1% were below 20 years. In study conducted by Dwivedi (2017), 67.6% were in age group of 21-30 years and 12.7% were above 30 years. The mean age in our

study was 28.6 ± 3.48 years. This is in accordance with the study of Perera *et al.*, (2009), mean maternal age was 28.8 ± 9.2 years.

In our study, 42 % of patients were primigravida and 58% were multigravida. The results were in accordance with the study conducted by Patel *et al.*, (2014) who found that majority of patients (66%) were multigravida. Similarly, study conducted by Patel *et al.*,

(2016) and Hasan *et al.*, (2009) reported that multigravida were 66% and 66.1% respectively.

In our study 52% of patients had history of abortion. In study conducted by Patel *et al.*, (2014) and Williams *et al.*, (1991) 40% and 43.5% had history of abortion respectively. In our study, history of threatened abortion was present in 9% of patients. In study conducted by Amirkhani *et al.*, (2013) found that history of threatened abortion was present in 33.3% of cases. However, study conducted by Kouk *et al.*, (2013) found that 16.5% of cases had history of threatened abortion.

Bleeding Characteristics

In our study, majority (65.5%) of patients presented at 8 to 10 weeks and 34.5% of patients presented at ≤ 6 weeks. This is in accordance with study conducted by Jasoliya and Bhatia (2017), majority (93%) presented at 6 to 12 weeks and < 6 weeks were only 7%.

In our study, majority of patients had spotting (61%), light bleeding (29%) followed by heavy bleeding (10%). In study conducted by Rai *et al.*, (2017), 70% had spotting, 20% had moderate bleeding followed by heavy bleeding (10%). This is in accordance with the study of Patel *et al.*, (2014), majority (68%) had spotting, 22% had moderate bleeding followed by heavy bleeding (10%).

USG Findings in First Trimester

In our study, subchorionic hematoma was found in 19.5% of patients. This is in accordance with study conducted by Manonmani and Nandhini (2016), SCH was found in 18% of patients. In our study, low lying placenta was found in 13% of patients. This is in accordance with the study of Dwivedi *et al.*, (2017), in which low lying placenta was found in 13.7% of patients. The same results were found by Weiss *et al.*, (2004) and Das *et al.*, (1996).

Pregnancy Outcome

In our study, abortion occurred in 19% of patients, ectopic was 5% and molar was 1.50%.

- Abortion: In our study, abortion occurred in 19 % of patients. This is in accordance with study of Dwivedi *et al.*, (2017) and Patel *et al.*, (2014) in which abortion rate was 22.2% and 23% respectively.
- Ectopic: In our study, ectopic was found in 5% of patients. In study conducted by Barik *et al.*, (2016) and Kurmi *et al.*, (2015), ectopic was 3.19% and 3 % respectively.
- Molar pregnancy: In our study, molar pregnancy was present in 1.5% of patients. This is in accordance with

the study of Barik *et al.*, (2016) and Kurmi *et al.*, (2015) in which molar was seen in 2.12% and 1% of cases respectively. In our study, 75.5% continued pregnancy in which preterm delivery occurred in 21.5% and full term delivery occurred in 78.5% of patients.

Fetal Outcome

In our study, 74.5% cases continued pregnancy. In study conducted by Barik *et al.*, (2016), 65.95% of cases continued pregnancy in which 77.7% delivered full term and 22.3% delivered preterm. In study conducted by Patel *et al.*, (2016), 64% continued pregnancy of which 77.2 % delivered full term and 22.8% delivered preterm.

Preterm Delivery

In our study, preterm delivery occurred in 21.48% of cases. In study conducted by Sarmalkar *et al.*, (2016), and Patel *et al.*, (2014), incidence of preterm delivery was 21% and 21.9%.

Low Birth Weight

In our study, incidence of low birth weight was 28.19%, out of which IUGR was found in 13.42% of patients. In study conducted by Patel *et al.*, (2014), incidence of LBW and IUGR was 35.9% and 14.1% respectively. In study conducted by Patel *et al.*, (2015) and Rai *et al.*, (2017), IUGR was found in 13.6% and 14% of cases respectively. The mean birth weight in our study was 2.62 ± 0.48 kg. This is in concordance with study conducted by Dwivedi *et al.*, (2017) who reported mean birth weight of 2.51 kg. Similarly, Sarmalkar *et al.*, (2016) reported mean birth weight of 2.5 kg.

Other outcomes like fetal distress, meconium stained amniotic fluid and malpresentation are 11.41%, 7.38% and 2.01% respectively. In study conducted by Sarmalkar *et al.*, (2016), incidence of fetal distress, MSAF and malpresentation are 5%, 3% and 4 % respectively.

Intrauterine Fetal Death

In our study, IUD occurred in only 1 patient. Similarly, study conducted by Sarmalkar *et al.*, (2016) found only 1 IUD in 100 patients. In study conducted by Amirkhani *et al.*, (2016) found that IUD occurred in 1.7% of cases.

Congenital Malformation

In our study, 2 patients had congenital malformation (1.34%). Similarly, Patel *et al.*, (2014) had found congenital malformation in 2 patients out of 100

patients studied. In study conducted by Arafa *et al.*, (2000), incidence of congenital malformation is 3% as compared to controls in which it is 0.3% in first trimester bleeders. However, study conducted by Barik *et al.*, (2016), found case of congenital malformation. Similarly, Strobino and Pantel-Silverman (1989) reported that first trimester bleeding of any severity was marginally associated with congenital malformation.

APGAR Score

In our study APGAR score ≥ 7 and < 7 was found in 89.26% and 10.74% of patients respectively. This is in accordance with the study of Amirkhani *et al.*, (2013) who found APGAR score of < 7 in 11.7% of patients. Hosseini and Soghra (2013) found in their study that APGAR score of < 7 was present in 17.4% of cases.

Other neonatal parameters like birth asphyxia and RDS was present in 5.36% and 4.03% of cases. In study conducted by Sarmalkar *et al.*, (2016), birth asphyxia and RDS was present in 5.4% and 13% of cases. In study conducted by Dwivedi *et al.*, (2017) found that birth asphyxia and RDS was present in 5.43 and 6.7% of cases.

NICU Admission

In our study, 12.0 8% of new born got admitted to NICU due to birth asphyxia, RDS, neonatal sepsis and jaundice. In study conducted by Dwivedi *et al.*, (2017), where he found NICU admission was 13.1% of cases. In study conducted by Wijesiriwardana *et al.*, (2004), NICU admission was seen in 16.7% of cases.

Perinatal Mortality

In our study, only one still birth was seen (0.67%) and no neonatal death was seen. Similarly, study conducted by Wijesiriwardana *et al.*, (2006) had found stillbirth in 0.7% and neonatal death in 0.7% of cases. In study conducted by John and Jauniaux (2006), still birth was seen in 1.45 % of cases. Sipil *et al.*, (1992) found no association between first trimester bleeding and perinatal mortality.

RELATIONSHIP BETWEEN ADVERSE PREGNANCY OUTCOMES AND AMOUNT OF BLEEDING

In our study, it was found that first trimester abortions and preterm delivery were present more significantly in light or heavy vaginal bleeding as compared to spotting (p value =0.01 and p value=0.0003 respectively). It was also found that LBW and fetal

distress was present more significantly in women with light or heavy vaginal bleeding as compared to spotting (p value=0.031 and p value=0.0001 respectively).

In study conducted by Bahad *et al.*, (2016) found that increased risk of preterm delivery was observed in patients with light bleeding. He also reported that increased risks of IUGR and preterm delivery was observed in patients with heavy bleeding. Similarly, Weiss *et al.*, (2004) had reported that heavy bleeding subjects were more likely to have IUGR and preterm delivery.

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