

## MATERNAL AND NEONATAL OUTCOME AFTER PREVIOUS SPONTANEOUS ABORTION AN EXPERIENCE AT PMC HOSPITAL NAWABSHAH.

Aneela Tahzeen<sup>1</sup>, Farkhana Yasmeen<sup>2</sup>, Masood Ahmed<sup>3</sup>, Masoom Ali Shah<sup>4</sup>, Aijaz Ahmed Khan<sup>5</sup>, Imtiaz Ali Langah<sup>6</sup>

### ABSTRACT

**INTRODUCTION:** When there is a sudden miscarriage of a child that is the most widely recognized intricacy of pregnancy cause the imperishable anxiety in couple which are mentally prepared for a child. **OBJECTIVES:** The aim of this study was to determine the maternal and neonatal outcome after previous spontaneous abortion **METHODS:** We conducted this Cross sectional study at Obstetrics and gynaecology department of Peoples Medical University & Hospital Nawabshah, during January to June 2020 (Six month). A total of 246 women with history of spontaneous abortion were included in this study. Detailed History was taken from all the patients with special regard to spontaneous abortions. All of the patients entered the study during the first trimester and was followed until delivery by the investigators. All the record were entered into Proforma. **RESULTS:** The average age of the women was 25.90±4.51 years. Maternal morbidity like premature rupture of membrane 11.8%, antepartum hemorrhage 8.5%, recurrence abortion 5.3%, intrauterine fetal death 5.3%, cesarean delivery 66.7%, instrumental delivery 10.2%, placenta previa 8.9%, preeclampsia 7.7% and eclampsia was observed in 6.1% women. Regarding neonatal outcome, there were 37% low birth weight (<2.5), 4.1% gross congenital anomaly, 40.2% low apgar score (≤6), 4.1% breech presentation, 46.7% preterm delivery, 44.3% NICU Admission and 2% perinatal mortality **CONCLUSION:** In present study the incidence of antenatal complications was high. The future pregnancy always at a higher risk if women have an unsuccessful past obstetrical history or a history of previous miscarriage. Always take a concern with the doctor and take help if there is history of repeated abortion in the early days of the pregnancy

**KEY WORDS:** Spontaneous abortion, Antepartum hemorrhage, recurrent abortion

1. Senior Registrar, Gyne/Obs, GIMS.
2. Assistant Professor. Gyne/Obs, PUMHSW, SBA.
3. Associate Professor Surgery, PUMHSW, SBA.
4. Assistant Professor, Peads Surgery PUMHSW, SBA.
5. Lecturer Aneasthesia, PUMHSW, SBA.
6. Assistant Professor, Surgery, PUMHSW, SBA.

**For correspondence:** Masood Ahmed<sup>3</sup>, Associate Professor, Surgery PUMHSW, SBA.  
[drmasood2001@hotmail.com](mailto:drmasood2001@hotmail.com)

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### INTRODUCTION

When there is a sudden miscarriage of a child that is the most widely recognized intricacy of pregnancy cause the imperishable anxiety in couple which are mentally prepared for a child. There is a need of research on this topic to find out the adverse outcome on the next pregnancy<sup>1</sup>. Spontaneous loss of pregnancy is a typical event, occurring in about 8 % to 20% of recognized pregnancies. About 80% of spontaneous pregnancy losses occur in first trimester<sup>2</sup>.

Women feel complete herself when they conceive the child. Pregnancy must be

measured a distinctive physiological event in a woman life. Though in some individuals many unusual changes occur which amend the outcome of pregnancy into a disaster. Women having past history of ineffective outcome, these female not emotionally stable in the next pregnancy.<sup>3,4</sup> Number of challenges encountered during exploration of reproductive consequences of miscarriage<sup>5</sup>. The exact reason for earlier spontaneous abortion is unidentified in 50% subjects despite of extensive investigations<sup>6,7</sup>. Major causes of abortions include chromosomal abnormality, anatomical fault, hormonal abnormality, genetic anomalies and

thrombophilia. Previous unsuccessful obstetrical history increase complication in future pregnancy, such as abortion in early days of gestation, preterm delivery, IUDS in women. These factors must well thought-out while choosing antenatal work-up and administration of pregnancy in those women who have a past history of sudden abortion.<sup>8</sup> Studies reported favorable results in 70 - 80 % cases of abortion among tender loving care<sup>9</sup>.

The chances of the premature birth of the baby increase in the future pregnancy when there is a previous history of abortion due to any cause such as chromosomal defect, any change in the anatomical appearance of the baby, baby with low weight, Apgar scores less than the normal range (7–10), Down syndrome or due to any limitation in the uterus that limit the growth of the fetus<sup>[10]</sup>.

The rationale of this study is that in our set up the population at risk can be identified and general awareness about the problems /outcome in the suspected population can be improved with the counseling by health care provider at their door step (CMW) to space the pregnancy and optimization of women health

In the secondary and tertiary setup more appropriate counseling regarding contraception in patient with spontaneous abortion by senior consultant by spacing pregnancy, by optimize the mental and physical health, provide folic acid supplementation in the periconception period.

#### **OBJECTIVES:**

Conclude the maternal effect after prior spontaneous abortion

Conclude the neonatal effect after prior spontaneous abortion

#### **OPERATIONAL DEFINITION**

**Spontaneous Abortions:** - Miscarriage is unprompted loss of fetus earlier than 20th week of gestation.

**Low birth weight:** - World Health Organization defined low birth weight (LBW) as birth weight 2,499 g or less of a liveborn infant, regardless the age of gestational.

**Preterm labor:** - it is a result of regular uterine contractions causing dilatated cervix before 37 completed weeks of pregnancy on history and ultrasound.

**Induced abortion:** - Termination of pregnancy using surgical or medical procedure.

**Pregnancy induced hypertension:-** Defined as blood pressure > 140mmHg systolic and > 90mmHg diastolic ,on two otherwise more consecutive occasion 4 hour apart after 20 wk of pregnancy

**Chronic hypertension:** - Blood pressure >140mmHg systolic or >90 mmHg diastolic earlier than 20 week of pregnancy and beyond 6week postpartum.

**Gestational diabetes:** - Fasting blood glucose level > 108 mg/dl and >140.4 mg/dl 2hrs postprandial.

**Insulin Dependent Diabetes:** - It is due absolute or near absolute deficiency of insulin due autoimmune destruction of beta cell of pancreas .the sugar level remains >99 mg/dl fasting and >140mg/dl postprandial.

**Preeclampsia:** is defined as disorder of pregnancy characterize by onset of high blood pressure with proteinuria i.e > 300 mg 24 hrs.

**Eclampsia:** is beginning of seizures women having preeclampsia.

#### **SOCIO ECONOMIC STATUS:**

**Lower class:** it is defined as per month income of the person from 10,000 to 20,000

**Middle Class:** it is defined as per month income of the person from 20,000 to 40,000

**High Class:** it is defined as per month income of the person from more than 40,000

#### **EDUCATION STATUS:**

**Illiterate:** the person who do not read & write any language

**Primary:** it is from grade one to five

**Secondary:** it is from grade six to eight

**High:** it is from grade nine and ten

**Intermediate:** It is from grade eleven to twelve

**Graduate:** it is from grade > 15 year of education

#### **MATERIAL AND METHODS:**

**SETTING:** - This study was conducted at Obstetrics and Gynaecology department of Peoples Medical University & Hospital Nawabshah.

**DURATION OF STUDY:** Six month, from January to June 2020

**STUDY DESIGN:** Cross sectional study.

**SAMPLE SIZE:** Done on WHO sample size formula, using the raosoft software for Sample size calculation using the proportion of (Spontaneous pregnancy loss be a common event, occurring in about 20% of recognized pregnancies)<sup>2</sup> with 95 % confidential interval and 5 % of margin of error , sample size stand selected n=246.

**SAMPLING TECHNIQUE:** Non-Probability consecutive

#### **SAMPLE SELECTION:**

##### **Inclusion Criteria:-**

- Women with history spontaneous abortion.

##### **Exclusion Criteria:-**

- Induced abortion.

- Spontaneous abortion with twin gestation.

- PIH, Chronic hypertension, GDM, Insulin Dependent Diabetes.

#### DATA COLLECTION PROCEDURE:-

This study performed after the authorization from hospital ethical committee & informed written consent obtained from all patients. Patients who fulfilled inclusion criteria. Thorough History was taken from patients with special consideration of spontaneous abortions. All patients were registered in the study during the first trimester and were followed until childbirth. All the record were entered into Proforma.

All of the patients entered the study during the first trimester and were followed until delivery by the investigator. All the data were recorded in the proforma that is maternal age, parity, education status, socio economics status were noted and information regarding contraception and consingenuous marriages were obtained.

Significant morbidity which were observed in study group were abortion antepartum hemorrhage, hypertensive disorder of pregnancy, intrauterine death, preterm premature rupture of membrane and operative deliveries

Regarding fetal outcome prematurity low birth weight, low Apgar score and congenital anomaly were noted.

#### DATA ANALYSIS PROCEDURE:-

As the data collected, the analyses conducted using Statistical Package for Social Science (SPSS) software, Version 19. Mean and standard deviation was calculated for quantitative variables like age, and gestational age. Frequency and

percentages was computed for qualitative variables like maternal and neonatal outcome.

#### RESULTS

246 women with past spontaneous abortion included in this study.  $25.90 \pm 4.51$  years was the average age of these women. shown in table 1, The average gestational age was  $36.45 \pm 2.22$  weeks as shown in table 2, The educational and socio economic status of the patient is also shown in table 3 and 4 respectively, Out of 246 women, 18 patients (7.32%) used different contraceptive methods for period of one to two years showing in figure 1, Maternal outcome after previous spontaneous abortion are presented in table 4. Maternal morbidity like premature rupture of membranes was 11.8%, antepartum hemorrhage was 8.5%, recurrence abortion 5.3%, intrauterine fetal death 5.3%, cesarean delivery 66.7%, instrumental delivery 10.2%, placenta previa 8.9%, preeclampsia 7.7 and eclampsia was observed in 6.1% women. Regarding neonatal outcome, there were 37% low birth weight ( $<2.5$ ), 4.1% gross congenital anomaly, 40.2% low apgar score ( $\leq 6$ ), 4.1% breech presentation, 46.7% preterm delivery, 44.3% NICU Admission and 2% perinatal Mortality are presented in table 5. Regarding consingenuousity 51% of the patients had history of consingenuous marriage, while 49% patients having non consingenuous marriage, regarding parity majority of patient belong to para 2-4 and small percentage fall in 5-8.

Table 1: AGE DISTRIBUTION OF THE PATIENTS n=246

Age	$\leq 20$	21-25	26-30	$> 30$
Patient	25	105	81	35
Percentage	10	43	33	14

TABLE 2: DESCRIPTIVE STATISTICS OF CHARACTERISTICS OF PATIENTS nn=246	
Variables	Mean (S.D)
Gestational Age (Weeks)	$36.45 \pm 2.22$
Age (Years)	$25.9 \pm 4.51$

FIGURE 1: CONTRACEPTIVE METHODS USED n=246

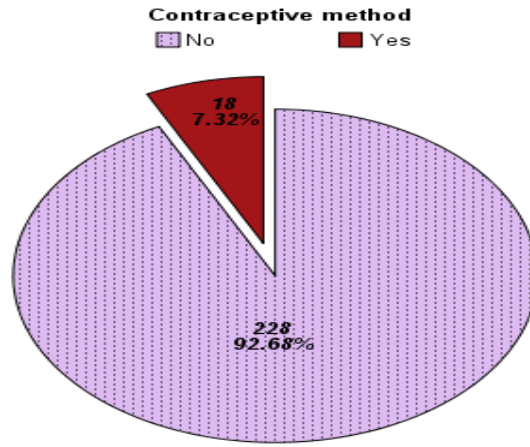


Table 3: EDUCATION STATUS OF THE PATIENTS n=246

illiterate	Primary	Secondary / intermediate	Graduate
35	49	83	79
14	20	34	32

FIGURE 2: SOCIO ECONOMIC STATUS OF THE PATIENTS n=246

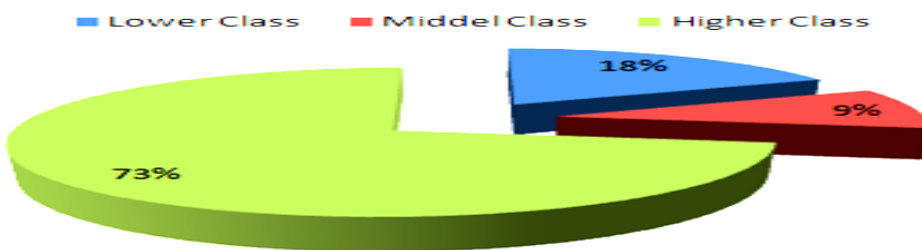


Table 4: Maternal Outcome

	Frequency	Percentage
Cesarean Delivery	164	66.7%
Instrumental delivery	50	20%
Premature Rupture of Membrane	29	11.8%
Placenta previa	22	8.9%
Antepartum Hemorrhage	21	8.5%
Preeclampsia	19	7.7%
Eclampsia	15	6.1%
Recurrence Abortion	13	5.3%
Intrauterine Fetal Death	13	5.3%

Table 5: Neonatal Outcome

Perinatal Outcome	Frequency	Percentage
Preterm Delivery	115	46.7%
NICU Admission	109	44.3%
Low Apgar Score ( $\leq 6$ )	99	40.2%
Low Birth Weight ( $< 2.5$ )	91	37%
Gross Congenital Anomaly	10	4.1%
Breech Presentation	10	4.1%
Perinatal Mortality	5	2%

**Table 6: Consingenuous Marriages**

Total No of Patients	Consingenuous marriage	Non Consingenuous marriage
246	125	121
100%	51%	49%

**Table 7: Parity Distribution**

Parity	2-4	5-8	>8
No. of patients	231	15	0
Percentages	93%	7%	0

**DISCUSSION**

Sudden abortion or miscarriage is the unplanned finish of pregnancy at any phase anywhere the embryo or fetus is unable to survive independently. The National Centre for Health Statistics, CDC and the WHO defines miscarriage as end of a pregnancy prior to 20 weeks of development or with the fetus born with weight less than 500grams<sup>11,12</sup>. However the definition by gestational age varies by country. The exact number of cases of sudden abortion in the general inhabitants is not known. Early pregnancy is confirmed by serum beta-human chorionic gonadotropin, sometime early pregnancy detection were written off as prolongations of the menstrual cycle. According to the medical terminology the failure of pregnancy earlier than the six weeks of gestation from the time when the last menstrual episode are termed as early pregnancy loss or chemical pregnancy<sup>12</sup> or chemical pregnancy. However, sudden abortion is define as “miscarriages that occur after the sixth week since the last menstrual period”<sup>12</sup>. Recurrent pregnancy loss, medically termed habitual abortion, refers to the incidence of three or more successive miscarriages. It occur in approximately 1% of productive couples, while a superior incidence of 7.4% was experimented by Blohm et al.<sup>13</sup>

Risk of spontaneous abortion changes over the course of pregnancy, and is highest during the first trimester<sup>14-15</sup> when approximately 80% of spontaneous abortions occur. As the week of pregnancy increases the chances of sudden abortion are decreasing, mostly after the 10th week of gestation the chances of sudden abortion are decreasing. In this study the average age and gestational age of the women was 25.90±4.51 years and it is comparable with Pillai et al study<sup>[16]</sup>. In this study the mean age was 27.8 years.

Warburton et al<sup>16</sup>, estimated the frequency of proven spontaneous abortion to be 14.7%, while Regan<sup>17</sup> et al, 1989 reported it to be 10.3%. Everett<sup>18</sup> et al, and Blohm<sup>13</sup> et al

observed the overall incidence of clinical spontaneous abortion 12%.

In the present study the incidence of PROM was found 11.8% which was comparable with Pillai et al study<sup>16</sup>. Kashanian<sup>19</sup> et al, observed an incidence of 27% in PROM in those with previous one abortion. Similar observation of higher incidence in PROM was also made by Buchmayer<sup>20</sup> et al, and Sheiner<sup>7</sup> et al, among those with recurrent miscarriage.

Kashanian<sup>20</sup> et al, demonstrated a repeat abortion rate of 16.5% in the case group following a prior spontaneous one miscarriage. Similar observations were also made by Everett<sup>18</sup> et al., 1997 with an incidence of 15%, Knudsen<sup>21</sup> et al, 1990 with an incidence of 16%, Regan<sup>17</sup> et al., 1989 with an incidence of 16-20% following prior one miscarriage. Knudsen<sup>21</sup> et al demonstrated that the risk of abortion increases to 25% in those with prior two miscarriages and 45% and 54% in those with 3 and 4 prior miscarriages respectively. However in this study recurrence abortion was 5.3% and it was low as compare to other studies.

Incidence of IUFD was 5.3% in this study Bhattacharya<sup>22</sup> et al, demonstrated an incidence of 1% in IUFD amongst those with prior one spontaneous abortion. Kashanian<sup>19</sup> et al, also made a similar observation with an incidence of 1.5% in IUFD. Jivraj<sup>23</sup> et al, and Tulppala<sup>24</sup> et al, demonstrated an increased incidence of perinatal lose in those with recurrent miscarriage.

The caesarean section rate was higher in the present study was 66.7% as compared to other studies. Kashanian<sup>19</sup> et al, 2005 demonstrated a caesarian section rate of 28.14% in those with prior one spontaneous abortion as compared to 13.48% in the control group. Tulppala<sup>24</sup> et al., demonstrated an increased incidence of caesarian section rate (36%) in those with recurring miscarriage. Jivraj<sup>23</sup> et al., also demonstrated a caesarian section rate of

36% in those with recurrent miscarriage. As the number of caesarean section increased as 66.7% in conclusion the total number of the patient about 8.9% having the major degree placenta previa at term, 6.1% with the eclampsia, 7.7% pre-eclampsia, 4% with the breech presentation at term and the babies delivered with distress was 40% all these are operative deliveries because of obstetrical causes same percentage of caesarean section has been done due to maternal fear about the adverse pregnancy outcome and some percentage of caesarean section was due to the obstetricians fear due to non availability of continuous CTG monitoring and fetal blood sampling during labour so same are the obstetrical reason and some of the maternal and obstetrician fear that increases the ratio of caesarean section.

The result of past unsuccessful obstetrical history (sudden abortion) in the development of placenta Previa is still debatable. Only one unproductive gestation period not increases the chances of placenta-Previa or Abruptio placentae, as observed by Schoenbaum<sup>25</sup>, Thom<sup>26</sup>. Bhattacharya<sup>22</sup> too observed no increase in incidence of antepartum haemorrhage following one prior miscarriage. In present study incidence of placenta previa was 8.9%. However Kashanian<sup>19</sup> et al., showed lower incidence of placenta previa (3%) and a comparable incidence of abruption placentae (3.5%) following a single previous miscarriage. A large study done by Sheiner et al<sup>7</sup>, frequency of placenta previa with a relative risk of 1.7 for placenta previa and 1.5 for Abruptio placentae was observed among women with prior two or more spontaneous abortion.

Present study has shown the incidence of pre-eclampsia was 7.7% and eclampsia was observed in 6.1%. S. Bhattacharya<sup>22</sup> et al in 2008 studied the obstetric outcome in women with one miscarriage and observed a high risk (4.4%) of preeclampsia in those with one miscarriage. Kashanian<sup>19</sup> et al. in 2006 also found a 3% increased incidence of pre-eclampsia in those with a prior single miscarriage. Jivraj<sup>23</sup> et al. in 2001 observed a 6.7 % greater frequency of pre-eclampsia among those having history of recurrent miscarriage.

Regarding neonatal outcome, there were 37% low birth weight (<2.5), 4.1% gross congenital anomaly and 40.2% low Apgar score ( $\leq 6$ ), 4.1% breech presentation. The incidence of LBW following one abortion is not significant as observed by Kashanian<sup>19</sup> et al, (8.53%) and Bhattacharya<sup>22</sup> et al, (8.5%). However, an increased incidence in LBW was observed by Thom<sup>26</sup> et al,

Schoenbaum<sup>25</sup> et al, Paz<sup>27</sup> et al, in those with recurrent miscarriage.

In our study the pre-term delivery rate was found 46.7%. Those females who have not successful previous obstetrical history, it is hard to describe the elevated threat of sudden abortion in these females. Possibly this can be linked toward the surgical treatment (D&C) of earlier incomplete abortion. Bhattacharya<sup>22</sup> et al, observed an incidence of 9.2% in pre-term delivery and Kashanian<sup>19</sup> et al, demonstrated a pre-term delivery rate of 14.02% amongst those with history of prior one spontaneous abortion. Hughes et al<sup>28</sup>, demonstrated incidence of 12.5% in preterm delivery rate in those with recurrent miscarriage. Tulppala et al<sup>24</sup>, 1993 and Jivraj et al<sup>23</sup>, had similar remarks were with an incidence of 13.3% in pre-term delivery in those with recurrent miscarriage.

In the present study the incidence of NICU admission was 44.3%. Pillai et al observed the incidence of NICU admission 63% as compared to 40% in the control group Tulppala et al<sup>24</sup>, 1993 demonstrated an increased incidence of 9.9% in NICU admission in those with recurrent miscarriage. Similar observations were also made by Jivraj<sup>23</sup> et al, 2001 (9.9%).

PE is an independent risk factor for uterine contraction fatigue and postpartum hemorrhage after vaginal delivery<sup>29</sup>, and placental abnormalities (placenta previa, implantation, or early ablation) and hypertension are closely related to severe postpartum hemorrhage<sup>30</sup>. The recent impact on fetuses is an increasing risk of perinatal death, FGR, small for gestational age fetus, and preterm birth<sup>31, 32</sup>. Current studies suggest that placenta dysfunctions have a profound impact on fetal long-term health, such as cardiovascular diseases, hypertension, obesity, nervous system dysfunctions, and psychological behavior abnormalities<sup>33, 34</sup>.

## CONCLUSION:

In present study the incidence of antenatal complications was high. The future pregnancy always at a higher risk if women have an unsuccessful past obstetrical history or a history of previous miscarriage. Always take a concern with the doctor and take help if there is history of repeated abortion in the early days of the pregnancy

**ETHICS APPROVAL:** The ERC gave ethical review approval

**CONSENT TO PARTICIPATE:** written and verbal consent was taken from subjects and next of kin

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**CONFLICT OF INTEREST:** No competing interest declared.

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