ORIGINAL ARTICLE

Fetomaternal Outcomes of Short Inter-pregnancy Interval

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ABSTRACT

Aim: To see the feto-maternal outcomes of short inter-pregnancy interval.
Methodology: A cross sectional comparative study was conducted at Obstetrics & Gynaecology Department of Gulab Devi Hospital, Lahore. A total of 200 female subjects (100 who had IPI <18 months and 100 who had IPI of > 18 months) were enrolled. After taking informed consent a detailed obstetric history, her number of previous pregnancies, date of last child born and last menstrual period (LMP) was taken. Estimated date of delivery (EDD) and duration of pregnancy was calculated. If the LMP was not sure then duration of pregnancy was calculated by the 1st trimester or earliest USG. IPI was calculated. Clinical examination and base line investigations were done to find out different feto-maternal parameters (maternal anemia, fetal height, lie of fetus, fetal heart rate).
Results: Frequency of various maternal outcomes were note as anemia in 140 (70%), Preterm labour 27(13.5%), placental abruption 5(2.5%), pre-eclampsia 4(2%). Frequency of various fetal outcomes was also noted in terms of pre-term birth (10.5%), IUGR (5%), LBW (26%) and nursery admission (13%). There was significant association of maternal anemia with short inter pregnancy interval.
Conclusion: Woman should use contraceptive methods to give adequate space between two pregnancies. Maternal anemia is significantly associated with short IPI which can be prevented by practicing an appropriate IPI. Short IPI is associated with increased risk of maternal and fetal complications. During antenatal and postpartum periods the female must be counseled regarding effects of short IPI.
Keywords: Maternal & Child Health, Antenatal Care, Short inter pregnancy interval, Public Health.

INTRODUCTION

Interval between any live or stillbirth at term and the beginning of next pregnancy is considered as IPI[1]. It excludes miscarriage as the preceding event[2]. Short IPI is the interval of 18 months or less in birth of one child and the start of new pregnancy[3]. The beginning of pregnancy is marked by calculating the last menstrual period. If a female has irregular menstrual cycle or if she does not remember the last menstrual period, the duration of pregnancy is estimated by fetal parameters on ultrasonography[4]. The time interval between one pregnancy and the next may affect the risk of pregnancy complications[5]. In the mothers with short IPI the physiological changes (secondary to pregnancy) do not return to normal. Maternal nutrients are not replenished in short time[6]. If a woman enters next pregnancy in depleted state, the chances of maternal anemia, hypertensive disorders of pregnancy, preeclampsia, antepartum hemorrhage, placental abruption, preterm labor and even mortality are increased and the risk of fetal complications are also increased[5,7,8,9,10].

This study is an attempt to see the frequency of various fetomaternal outcomes of short inter pregnancy interval and to find any association between these outcomes and short IPI.

MATERIALS AND METHODS

This cross sectional comparative study was conducted at Obstetrics and Gynaecology Department Gulab Devi hospital, Lahore during the period of March 2015 to March 2016.

Patients & Methods: A total of 200 female subjects (100 who had IPI <18 months and 100 who had IPI of > 18 months) were enrolled. After taking informed consent a detailed obstetric history, number of previous pregnancies, date of last child born and last menstrual period (LMP) was taken. Estimated date of delivery (EDD) and duration of pregnancy was calculated. If the LMP was not sure then duration of pregnancy was calculated by the 1st trimester or earliest USG. IPI was calculated. Clinical examination performed to check signs of anemia like pallor and koilonychia. Abdominal examination performed to assess fundal height, lie of the fetus and fetal heart rate were checked. Investigations were performed specially CBC to confirm the presence and absence of maternal anemia. Counseling was done regarding regular antenatal visits. Patient was followed during her antenatal period and during labour. Occurrence of preterm labor, preeclampsia and placental abruption were noted. The fetal and neonatal outcomes were studied in context of low birth weight (LBW), preterm birth and nursery admission. Confidentiality of the patient was maintained.
Data analysis: Data were assessed and analyzed by SPSS version 20.0. Fisher's Exact test and Chi-square test were used to find the association.

RESULTS

Mean age of subjects enrolled in this study was 30±3.4 years. The age distribution among 200 females included in the study were 56(28%) <20 years of age,108(54%) belonged to 20-35 years age group and 36(18%) were 35years or more. The results of number of pregnancies (gravidity) showed that 76(38%) were second gravida, 32(16%) were third gravida, 54(27%) were fourth gravida and 38(19%) were fifth gravida or more.

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The results of different maternal outcomes in the females who had inter pregnancy interval less than 18 months showed that anemia was present in 77(77%), placental abruption in 3(3%) and preeclampsia 2(2%). Preterm labour started in 15(15%) of females. The outcomes when studied in females with more than 18 months inter pregnancy interval showed anemia in 63(63%), placental abruption 2(2%), preeclampsia 2(2%) and preterm labour in 12(12%) females.

Table1: Basic Maternal Characteristics

Age	
< 20 Years	56 (28%)
20-35 Years	109 (54.5%)
> 35 Years	35 (17.5%)
Gravidity	
02 Gravida	76 (38%)
03 Gravida	32 (16%)
04 Gravida	54 (27%)
≥ 5 Gravida	38 (19%)

Fig 1: Frequency of Various Feto-Maternal Complications

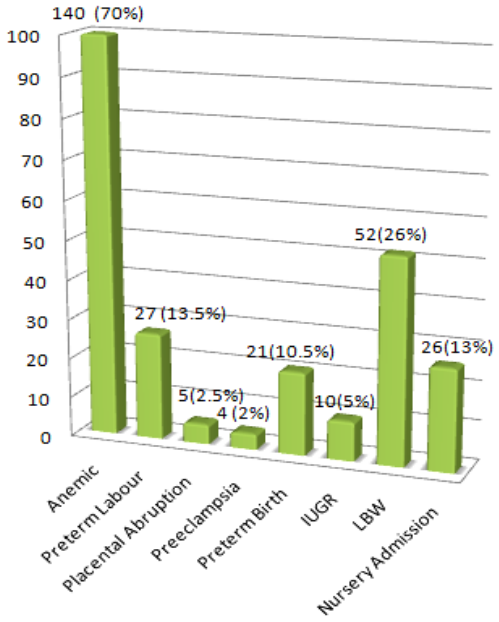

Table2: Association of Feto-Maternal Outcomes with Pregnancy Interval

	IPI ≥ 18 months (n=100)	IPI < 18 months (n=100)	P-value
Maternal Outcomes			
Anemic	63	77	0.05*
Preterm Labour	12	15	0.30
Placental Abruption	02	03	1.0
Preeclampsia	02	02	1.0
Fetal Outcomes			
Preterm Birth	11	13	0.81
IUGR	04	06	0.51
LBW	22	30	0.19
Nursery Admission	11	15	0.40

**p- value ≤ 0.05 (Significant)*

The results of fetal and neonatal outcomes in females of less than 18 months interval revealed IUGR in 6(6%). Preterm birth occurred in 13(13%). 30(30%) neonates born with low birth weight and there were 15(15%) nursery admissions.

In females of inter pregnancy interval more than 18 months, it was found that 4(4%) babies had IUGR. There were 11(11%) preterm births. The neonates with low birth weight were 22(22%) and there were 11(11%) nursery admissions.

DISCUSSION

IPI is the period between the time of delivery of one baby and conception of next pregnancy. The short IPI is evaluated and studied by different researchers and the exact same period is not followed. Short IPI defined < 3, 6, 9, 12 or 18 months indifferent studies[11,12]. These studies have demonstrated that the shortest the IPI the rate of maternal and fetal complications are more frequent to occur. All of these studies reported adverse outcomes have a relation with short IP[11,12].

In our study it was demonstrated that The IPI <18 months reveals fetal and neonatal outcomes such as IUGR, prematurity, low birth weight, neonatal and nursery admissions. A study reveals that ideal IPI of 18-23 months is required for preventing adverse fetal and perinatal outcomes[13].

Different studies have proven that the prevalence of low birth weight and preterm delivery has a relation to the short interval between pregnancies[14,15,16,17]. In our study although the percentage of preterm birth and LBW is slightly high with IPI <18 months but no significant association was found probably due to small sample size. The literature reveals that ideal inter pregnancy interval is 18-23 months.[13] The next pregnancy after this interval has better outcomes and low rates of obstetric, maternal and fetal morbidity[18,19]. Literature reveals that if IPI is <6 months there is higher prevalence of early preterm birth, low birth weight, neonatal complications, neonatal deaths and severe maternal complications[20].

The inter pregnancy interval is the interval during which a female recovers from the physiological changes of previous pregnancy and birth[6]. These changes return to normal gradually over a period of time. The mother has to take care of new born, children and family. She establishes breast feeding. In our social setup the next pregnancy is not planned by most of the women. The inter pregnancy interval varies amongst women; it can be of any duration from 6 months to years. The international studies reveals the association between short inter pregnancy interval and adverse maternal, fetal and perinatal outcomes[5,21].

In present study anemia is the most common feature occurring in females with short inter pregnancy interval. Different studies show a strong association between maternal anemia and successive pregnancies with short IPI[22,23]. Preterm labour, preeclampsia and placental abruption also complicate the pregnancies with short intervals in between. A study reveals that short IPI is linked with greater risks of maternal anemia, prelabour rupture of membranes and placental abruption[24].

The IPI is not standardized in different studies. Different studies describe short inter pregnancy intervals of different duration. In one study[25]. it was found that short

inter pregnancy interval is less than 6 months. Another study[26] described it as less than 12 months. In some studies it was defined as less than 3, less than 6, less than 9,less than 12 or 18 months.[27] In literature 18-23 months interval is considered an ideal to minimize complications in next pregnancy.[1] So in our study we took 18 months as a landmark of short inter pregnancy interval to generalize and standardize the IPI in context of these available literatures. The maternal and fetal outcomes are better when the interval is more than 18 months[7,14,28]. So the women should be aware of IPI and its impacts on pregnancy outcomes.

CONCLUSION

The women should be aware of IPI and its impacts on pregnancy outcomes. During antenatal and postpartum periods the female must be counseled regarding effects of short IPI. Woman should use contraceptive methods to give adequate space between two pregnancies.

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