

Study of fetomaternal outcome in case of short interpregnancy interval

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Abstract

Background: This study was carried out to study the effect of short interpregnancy interval on fetomaternal outcome. Short and long interpregnancy intervals are associated with increased risk of adverse fetomaternal outcome.

Aim: To study fetal and maternal outcome in pregnancy with short interpregnancy interval.

Materials and Methods: This was a randomized comparative study conducted in department of obstetrics and gynaecology of a medical college and tertiary health care centre. Total of 100 female subjects were taken. The study was conducted for duration of 6 months.

Results: 100 patients (50 patients of short interpregnancy interval and 50 patients of normal interpregnancy interval) were taken for study and were studied for various fetomaternal outcome like anaemia, preterm labour, premature rupture of membranes (PROM), low birth weight (LBW), intrauterine growth retardation (IUGR), etc. Frequency of various maternal outcomes were noted

as Anaemia in 34 (68), preterm labour 12 (24%), premature rupture of membranes in 14 (28%), scar dehiscence in 5 out of 10 patients with previous caesarean section. Various fetal outcomes were noted in terms of low birth weight in 18 (36%), preterm birth 11 (22%), NICU admission in 6 cases. There was significant association of maternal Anaemia with short interpregnancy interval.

Conclusion: Short interpregnancy interval is associated with increased risk of various fetomaternal complications. So women should be counseled regarding effects of short interpregnancy interval. Women should use various contraceptive methods to keep adequate interpregnancy interval. Family planning programs should be promoted which supports adequate interpregnancy interval and improves fetomaternal outcome.

Keywords: Interpregnancy Interval, Low Birth Weight, Anemia

Introduction

Interpregnancy interval – It is defined as Interval between any live or still birth at term and beginning of next pregnancy [1].

It does not include miscarriages as preceding event [2].

The inter pregnancy interval is the interval during which a female recovers from the physiological changes of previous pregnancy and birth [3]. 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.

Short interpregnancy interval is the interval of 18 months or less in between birth of previous child and start of new pregnancy [4]. The beginning of pregnancy is marked by last menstrual period (LMP). If last menstrual period is not known or mother has irregular menstrual cycle, then duration of pregnancy is estimated by fetal parameters on 1st trimester ultrasonography.

Short interpregnancy interval is associated with adverse maternal, perinatal and fetal outcome [3] [5]. Short intervals between pregnancies is associated with an increased risk for adverse pregnancy outcomes like preterm delivery, low birth weight, small for gestational age, low Apgar score, maternal anemia, placenta previa, abruption placenta, dystocia, rupture of uterus especially in women with previous caesarian section, maternal morbidity and mortality. Women with short interpregnancy interval are also at an increased risk for failure of trial of VBAC, PPH and pre-eclampsia [6][7][8]. Some adverse perinatal outcomes such as preterm birth and low birth weight are associated with increased morbidity and mortality for newborn and infant [9][10]. In

addition, babies who are born prematurely or with low birth are at a higher risk of long term complications [11][12].

This study focuses on various fetomaternal outcomes and its association in case of short interpregnancy interval.

Methodology

This was a randomized comparative study conducted in department of Obstetrics and Gynecology of Dheeraj Hospital, Vadodara, Gujarat.

Sample size: 100 patients

Duration: 6 months

INCLUSION CRITERIA

- Pregnant women with one or more previous live birth
- Singleton pregnancy

EXCLUSION CRITERIA

- Primigravida
- All previous pregnancies not ending in live births (i.e. miscarriage, abortion and stillbirth)
- Multiple pregnancy (previous or present)
- Patients not willing to participate in study

A total of 100 pregnant patients were taken, 50 patients with interpregnancy interval of less than 18 months and 50 patients with interpregnancy interval of more than 18 months. After taking informed consent a detailed obstetric history, number of previous pregnancies, last menstrual period and date of previous child birth taken. If last menstrual period was not known, then duration of pregnancy was calculated by 1st trimester ultrasonography. Expected date of delivery and duration of pregnancy was calculated. Clinical examination was done especially general examination for signs of anemia like pallor, pedal edema was done. Abdominal examination was done to assess fundal height, fetal lie, fetal heart rate etc. Ultrasonography was done to assess fetal wellbeing. Investigations were done like CBC to rule out Anaemia.

Patients were followed during their antenatal visits and during labour. Pregnancy outcome - maternal like preterm labour pain , placental abruption, preeclampsia and fetal like low birth weight , intra uterine growth retardation were studied and compared in both groups.

Observations and Results

100 female patients (50 patients of short interpregnancy interval and 50 patients of normal interpregnancy interval) were taken and studied for their different feto-maternal outcome. The results are tabulated as below.

Table 1.

Mode of delivery	Short interpregnancy interval (50)	Normal interpregnancy interval (50)
Previous normal delivery	40	37
Previous cesarean section	10	13

As shown in table 1 , out of 50 patients of short interpregnancy interval , 40 patients had previous normal delivery and 10 patients had previous caesarian section.

And in 50 patients with normal interpregnancy interval, 37 patients had previous normal delivery and 13 patients had previous caesarian section.

Table 2: Distribution of cases as per various maternal complications

Maternal complications	Short interpregnancy interval (50)	Normal interpregnancy interval (50)
Anaemia	34 (68%)	28 (56%)
Preterm labour	12 (24%)	4 (8%)
PROM	14 (28%)	5 (10%)
Scar Dehiscence	5 (10%)	3 (6%)
Placenta previa	1 (2%)	0

As described in table 2 , anemia is the most common maternal complication in both – with normal and short interpregnancy interval . anaemia is more prevalent in patients with short interpregnancy interval (68%) than in patients with normal interpregnancy interval (56%).

Other complications like preterm labour(24%) , premature rupture of membranes(PROM) (28%) are also more common in patients with short interpregnancy interval .

In patients with previous casesian section , out 10 patients of short interpregnancy interval 5 patients had scar dehiscence . whereas 3 patients out of 13 patients with normal interpregnancy interval had scar dehiscence.

Table 3: Distribution of cases as per fetal complications

Fetal complications	Short interpregnancy interval (50)	Normal interpregnancy interval (50)
Low birth weight	18 (36%)	10 (20%)
Preterm births	11 (22%)	4 (8%)
NICU Admission	6 (12%)	3 (6%)

As shown in table 3 , 36% babies (18 out of 50) born to mother with short interpregnancy interval had low birth weight. Whereas 20% (10 out of 50) babies born to mother with normal interpregnancy interval had low birth weight. Thus prevalence of low birth weight babies was more common in mothers with short interpregnancy interval.

Preterm babies were more common in patients with short interpregnancy interval (22%) than in mothers with normal interpregnancy interval (8%). NICU Admissions were also more common in babies of patients with short interpregnancy interval.

Table 4: Reasons for NICU admission

Reason for NICU Admission	Short interpregnancy interval (50)	Normal interpregnancy interval (50)
Respiratory Distress	2	1
Low birth weight	3	1
IUGR	1	-

As shown in table 4 , low birth weight , respiratory distress and IUGR were one of common causes for NICU admission.

Discussion

Interpregnancy interval is the period between the time of delivery of one baby and conception of next pregnancy. The short interpregnancy interval is evaluated and studied by different researchers but the exact same period was not followed. Short Interpregnancy interval is defined as 3, 6, 9, 12 or 18 months in different studies[13]. All of these studies have reported that adverse outcomes have a relation with short Interpregnancy interval.

In our study it was demonstrated that The Interpregnancy interval <18 months is associated with various fetal and neonatal outcomes such as IUGR, prematurity, low birth weight, neonatal and nursery admissions. A study reveals that ideal Interpregnancy interval of 18-23 months is required to prevent adverse fetal and perinatal outcomes [14].

The estimated incidence of anemia among pregnant women in India is 50% (National Family Health Survey 2015-2016). In our study, as shown in table 2, incidence of anemia was found to be 68% in women with short interpregnancy interval which is significantly higher than the national average and 56% in women with normal interpregnancy interval.

Incidence of preterm labour was found to be 5.8% and between 7-9% in various studies [15][16]. In our study 24% patients went into preterm labour, In contrast only 8% patients with normal interpregnancy interval went into preterm labour. The prevalence of low birth weight in developing countries (16.5%) is twice than in developed countries (7%) [17]. In our study 36% patients with short interpregnancy interval delivered low birth weight baby whereas 20% patients with normal interpregnancy interval had low birth weight babies as shown in Table 4.

The incidence of uterine scar dehiscence ranges between 0.2 and 4.3% of all pregnancies with previous caesarean [6]. In our study scar dehiscence was found in up to 50% patients with previous cesarean with short interpregnancy interval and in 23.07% patients with normal interpregnancy interval. In similar studies, scar dehiscence was reported in 65% of patients with interpregnancy interval less than 18 months and in only 6.66% of patients with interpregnancy interval more than 24 months [18]. A longer time interval after a previous cesarean section gives more quality attributes to the scar [19].

Thus women should be aware of interpregnancy interval and its fetomaternal outcomes and should practice adequate interpregnancy interval of atleast 18-23 months to prevent various adverse fetomaternal outcomes.

Conclusion

The women should be aware of interpregnancy interval and its impacts on pregnancy outcomes. During antenatal and postpartum periods the female must be counselled regarding effects of short Interpregnancy interval. Woman should use various contraceptive methods to give adequate space between two pregnancies to prevent adverse fetomaternal outcomes. Family planning programs should be promoted for the same.

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