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Effect of interpregnancy interval on maternal outcome – An observational study

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Abstract

Aim and Objectives: To study the effect of inter pregnancy interval on maternal outcome.

Material and Method: An observational prospective study was conducted in department of obstetrics and Gynecology, S. M. S medical college Jaipur from May2021 to April 2022.Total 360 pregnant women were enrolled in this study.

Result: In our study, maximum women with Anemia (11.11%), APH (3.33%), Uterus rupture (1.94%), PPH (5.55%) and Post partum infection (06.94%) had short IPI while higher incidence of HDP (9.72%) found in women with long IPI. This study provides critical information relevant for improving pregnancy outcomes.

Conclusion: This study confirms that shorter IPI and long IPI are associated with increased risks of adverse maternal outcomes. Short and Long birth spacing is a modifiable risk factor that has an important impact on maternal health and these risk factor can be minimized by awareness programmes, good antenatal care and good counseling at the time of discharge after delivery and in follow up till puerperium.

Keywords: Short Inter pregnancy Interval, Maternal outcome, Anemia, APH.

Introduction

One of the important goals of Family Planning program is to assist women in achieving an optimal spacing between births. conceive. The time between the end of a pregnancy and the start of another is defined as inter - pregnancy interval (IPI) 1. As per WHO, after alive birth, there commended interval before attempting the next pregnancy is at least 24 months; and at least 6 months follow Ing abortion in order to reduce the risk of adverse maternal out come2. Women in high resource nation sare increasingly de laying child bearing which poses challenges for spacing of pregnancies 3. Short IPI increases the risk of adverse maternal risk such as premature rupture of membrane (PROM), placental abruption, placenta previa, Anemia, uterine rupture (for women who previously delivered by caesarean section), and gestational diabetes (GDM) 4 - 9. Long interval sare

thought to be a consequence of in fecundity and its associated poor pregnancy outcomes, Very long gaps between births may result in maternal physio logical regression. e., risk for mothers (and infants) related to those associated with primiparous women10. This may explain why intervals greater than 59 months were associated with increased risk fore clampsia and pre-eclampsia 11. This study may be helpful in counselling couples for planning an optimal time to conceive another pregnancy in order to have the best possible pregnancy out comes.

Aim and Objectives

To study the effect of inter pregnancy interval on maternal outcome.

Material and Method

The present study was conducted in the Department of Obstetrics and Gynecology at SMS Medical College, Jaipur from May 2021 to April 2022. The study was aimed to assess and compare the effects of various inter pregnancy intervals on the pregnancy and its outcome in relation to mother.

Place of the study

Department of obstetrics and Gynecology at SMS medical college & Associated Group of Hospitals, Jaipur.

Type of Study: A hospital based observational study.

Study design: Prospective study.

Study Population

All the pregnant women admitted labour room as per inclusion criteria who gave consent to be part of study.

Inclusion Criteria

- All pregnant women attended OPD who have not participating in any other study.
- Who gave consent to be part of study and giving written informed consent.
- All single ton pregnancy

Exclusion Criteria

- All primigravidas
- Pregnancies with a pre-existing morbidity prior to conception.

From these selected patients detailed history were recorded such as age, education, marital status, socioeconomic status, city of residence. The past obstetric history, previous and present deliveries, events during antenatal , intranatal and postnatal period and fetal outcome were noted.

Their results were submitted to statistical analysis to derive the conclusion.

Observation and result

Table 1: Distribution of cases according to Inter pregnancy Interval and Anemia

Anemia	**Interpregnancy interval**								
	<18month		18- 60 month		>60month		Total		P Value
	N	%	N	%	N	%	N	%	0.001
YES	40	11.11	30	08.33	10	02.77	80	22.22	
NO	80	22.22	160	44.44	40	11.11	280	77.77	
Total	120	33.33	190	52.77	50	13.88	360	100	

Table 1 shows that that 22.22% cases had Anemia in our study group out of which 11.11% had IPI of <18 month , followed 08.33% & 02.77% had IPI of 18-60 month and > 60 months respectively. This result was significantly associated with inter pregnancy interval and anamia as p value was 0.001.

Table 2: Distribution of cases according to Inter pregnancy interval and HDP (Hyper tensive disease of pregnancy)

HDP	**Interpregnancy Interval**								**P Value**
	<18 month		**18-60 month**		**>60month**		**Total**		
	N	%	N	%	N	%	N	%	

YES	10	2.77	10	02.77	15	4.16	35	9.72	
NO	110	30.5	180	50	35	9.72	325	90.27	
Total	120	33.33	190	52.77	50	13.88	360	100	<0.001

Table 2shows higher incidence of HDP higher incidence (9.72%) of PIH found in our study out of them of their 4.16% had IPI of >60 months, followed by equal 2.77% cases found in IPI of 18-60 months and <18 months group. This result was statically significant associated with interpregnancy interval and HDP as p value was <0.001

Table 3: Distribution of cases according to Inter pregnancy interval and APH (Ante partum Hemorrhage)

	Inter pregnancy Interval								**P value**
	<18 month		**18-60month**		**>60 month**		**Total**		
APH	N	%	N	%	N	%	N	%	
YES	12	3.33	6	1.66	4	1.11	20	6.11	
NO	108	30	184	51.11	46	12.77	340	93.88	
Total	120	33.33	190	52.77	50	100	360	100	0.042

Table 3 shows maximum incidence of APH 6.11% cases in our study had APH out of them 3.33% cases had short IPI <18 month, followed by 1.66% and 1.11%had 18-60 months and >60 months IPI respectively. This result was statically significant and associated with interpregnancy interval as p value was 0.042.

Table 4: Distribution of cases according to Inter pregnancy interval and uterus.

Uterus Rupture	**Inter pregnancy Interval**								**P Value**
	<18 month		**18-60month**		**>60month**		**Total**		
	N	%	N	%	N	%	N	%	
YES	7	01.94	0	0	0	0	7	1.94	<0.001
NO	113	31.38	190	52.77	50	13.88	353	98.06	
Total	120	33.33	190	52.77	50	13.88	360	100	

Table 4 shows in our study higher incidence of uterus rupture found in women with short IPI (1.94%). This result was significant and associated with inter pregnancy interval as p value was < 0.001

Table 5: Distribution of cases according to Inter pregnancy Interval and Post partum hemorrhage (PPH)

PPH	**Inter pregnancy Interval**								**P value**
	<18 month		**18-60 month**		**>60month**		**Total**		
	N	%	N	%	N	%	N	%	
YES	20	05.55	8	2.22	3	00.83	31	8.61	
NO	100	27.77	182	50.55	47	13.05	329	91.39	<0.001
Total	120	33.33	190	52.77	50	13.88	360	100	

Table 5shows maximum incidence of shows in our study 8.61% cases had PPH, out of them 5.55% cases had short IPI <18 months, followed by 2.22% and 00.83% cases had 18-60 months and >60months respectively. This result was significant and associated with interpregnancy interval and PP Has p value was <0.001

Table 6: Distribution of cases according to Inter pregnancy interval and post-partum infection

Postpartum Infection	**Interpregnancy interval**								**P value**
	<18month		**18-60 month**		**>60 Month**		**Total**		<0.001
	N	%	N	%	N	%	N	%	
YES	25	06.94	10	2.77	4	1.11	39	10.83	
No	95	26.38	180	50	46	12.77	321	89.17	
Total	120	33.33	190	52.77	50	13.88	360	100	

Table 6 shows in our study10.83% cases had postpartum infection, if we separate them, 06.94% had short IPI <18 months followed by 2.77% and 1.11 % cases had 18-60 months and >60 months. This result was significant and

associated with inter pregnancy interval and post-partum infection as p value was <0.001

Discussion

The present study "The effect of inter pregnancy interval on maternal outcome" was conducted in the Department of Obstetrics and Gynecology at SMS Medical College, Jaipur from May 2021 to April 2022. The study was aimed to assess and compare the effects of various interpregnancy intervals on the pregnancy and its outcome in relation to mother.

Inter pregnancy inter valis calculated as interval between date of last pregnancy out come and last menstrual period.

In our study 360 patients were included and divided into small, normal and large IPI. Out of these 360 patients, 120 belonged to <18 months, 190 patients to18 – 60 months, 50 patients to > 60 months inter pregnancy interval.

Table 1 shows that Anemia was significantly high among women who had inter pregnancy interval of < 18 months, this finding was comparable to a prospective cohort study done by Onwuka CC et al[12] 2020 and also similar to study done by Lilungulu et al[13] reported that 94% patients with short IPI (<6 MONTH) had Anemia and done by Eman M. Mah fouzetal[14]. In our study in short IPI majority of women had Anemia (11.11%) as compared to in normal IPI only 08. 33% and in long IPI 02.77 % had anemia. The difference was statistically significant and similar to above studies. This indicates that Anemia is associated

with closely spaced pregnancies as there is no time for the woman to replenish the body store.

Table 2 shows higher incidence of HDP found in women with long IPI (4.16%) similar to study done by Migninietal[15] and study done by Eman M. Mah fouzetal[14] reported the percentage of women with preeclampsia was significantly higher with long interval IPI 16.7% in comparison to with short and normal IPI .dissimilar to study done by Conde-Agudeloetal[16] and study done by Lilungluetal[13]. Deleterious effects of very long intervals, particularity increased risks of maternal mortality, pre - eclampsia, and eclampsia as the mother loses protective effect from the previous pregnancy.

Table 3 shows majority of women with incidence of APH 3.33% had inter pregnancy interval of <18 months. This study similar to study done by Conde-Agudelo et al[17] and study done by Shahi et al[18]and study done by Blumenfeld YJ etal[19]. The difference was statistically significant and correlates to above studies. This indicates the short interval between pregnancies might interfere with the normal processes of remodelling of endometrial blood vessels after delivery with subsequent utero placental under perfusion, thereby increasing the likelihood for placental abruption.

Table 4 shows maximum Women with uterine rupture 01.94% had short IPI (<18 month) which was similar to study Stamilio DM, De Franco Eetal[20] reported that total of 128 cases (0.9%) of uterine rupture occurred in women with short IPI an interval less than 6 month was associated with increased risk of uterine rupture (adjusted odds ratio [aOR] 2.66, 95% confidence interval [CI] 1.21-5.82). Long inter pregnancy interval was not associated with an increase in major morbidity. This is due to lack of proper counseling at time of discharge of previous Lscs.

Table 5 shows that higher incidence of PPH found in women had short IPI (5.55%) similer to study done by Seham Fareid Ally Raga betal[22] & another study Lilungulu etal[13].

The difference was statistically significant and correlates to above studies. PPH in short IPI may due to high incidence of Anemia, preterm labour were affect uterine

contractility. The PPH occurs due to interference in the endo metrial blood vessels remodelling after delivery and in ad equates pace interval for reproductive organs to have adequate resting period to carry another pregnancy.

Table 6 shows in our study 06. 94 % cases with post-partum infection had short IPI < 18 month and minimum 1.11 % cases with postpartum infection had long IPI which was similar to above study Conde – Agudelo A et al[21].

Women with short inter pregnancy intervals had the highest rates of third trimester bleeding, premature rupture of membranes, puerperal endometritis, Anemia, and maternal death so they have higher incidence of post-partum infection.

Conclusion

This study concluded a very clear high risk for maternal outcome among women with short and long IPI, short IPI women will not have sufficient time to recover in terms of socio economic, cultural , Psycho logical and Physical body preparedness and get ready fo the subsequent pregnancy and higher risk of antenatal, intranatal and postnatal complication. Deleterious effects of very long intervals particularity increased risks of maternal mortality, infertility, pre - eclampsia, and eclampsia as the mother loses protective effect from the previous pregnancy.

Short and Long birth spacing is a modifiable risk factor that has an important impact on maternal health and these risk factor can be minimized by awareness programmes, good antenatal care and good counseling at the time of discharge after delivery and in follow up till puerperium.

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Declarations

Conflict of interest

The authors declare that they have no conflict of interest and there is no violation of human rights.

Ethical Approval

The study received approval from the institutional ethics committee.

Informed consent

Written informed consent was obtained from the study participants.

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