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An observational study to find factors associated with short interpregnancy interval among women with antecedent cesarean deliveries

[1]Dr Surbhi Agarwal, PG Student, Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur

[2]Dr Premlata Mital, Senior Professor and Head of Department, Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur

[3]Dr Aditi Agrawal, PG Student, Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur

[4]Dr Shivani Rathore, PG Student, Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur

[5]Dr Priyanka Rawat, PG Student, Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur

Corresponding Author: Dr Surbhi Agarwal, PG Student, Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur.

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Abstract

Introduction: The World Health Organisation (WHO) recommends an inter pregnancy interval (birth-to-pregnancy interval) of 24 – 59 months to minimise perinatal mortality and improve maternal health. Birth spacing is one of the strategies through which good maternal and child health can be achieved. Birth spacing has become a major health promotion programme strategy for mothers in recent years especially in the developing countries.

Methods: This observational study was conducted in Department of Obstetrics & Gynaecology, in a tertiary care institute located in central India, over a period of 12 months. 200 women with history of antecedent caesarean delivery were studied to identify factors behind short interpregnancy interval. Data were studied and statistically analysed

Results: women who were young (<25 years) (OR= 3.1224), residing in rural area (OR= 4.0952), illiterate (OR= 2.9217), who belonged to low socio-economic status (OR= 2.6897) were more likely to experience Short Interpregnancy interval. Addition to this woman who were second gravida (OR= 2.5244), who had IUFD or stillbirth in previous pregnancy (OR= 5.4444), who were not using any contraceptives (OR=10.6014), who had female child in their last delivery (OR= 2.7934), who did not plan current pregnancy (OR= 5.1081) were more at risk of having short IPI.

Conclusion: As interpregnancy interval is a modifiable risk factor, interventions to enhance contraceptive utilization behaviours, encouraging maternal education, encouraging breastfeeding among women would be helpful to narrow the gap between optimal and actual birth spacing. Awareness raising and cultural promotion

of parents should also be made to avoid sex-based intervals.

Keywords: Interpregnancy Interval (IPI)

Introduction

Globally, there is a significant reduction in maternal mortality in the last 20 years and this has partly been due to the increased contraceptive use with consequent reduction in unintended pregnancies[1]. Birth spacing, therefore, is one of the strategies through which good maternal and child health can be achieved. Birth spacing has become a major health promotion program strategy for mothers in recent years especially in the developing countries. Optimal interpregnancy interval brings about an improvement in maternal and perinatal outcome following delivery[2]. The World Health Organization (WHO) recommends an inter-pregnancy interval (birth – to pregnancy interval) of not less than 24 months or a minimum inter birth interval of 33 months, in order to minimize perinatal mortality and improve maternal health[3]. Birth spacing patterns and practices vary worldwide, with women in low-income countries reported to have shorter inter birth intervals than their counterparts in high income countries[4]. Several factors, including maternal age, failure or lack of contraceptive use, family size, level of male partner involvement, and sex of the previous child have been reported to influence birth spacing[4,5]. Nevertheless, short inter birth intervals are associated with an increased risk of cesarean section delivery, preterm births, small for-gestational age babies, postpartum haemorrhage, ruptured uterus, and death[6]. In women with previous cesarean delivery the risk for these adverse outcomes may be amplified two to three fold[7]. In the last decade there is rise in cesarean rate. Women who had cesarean deliveries are at higher risk of unfavourable maternal and perinatal outcomes therefore there is a need to identify those who are likely to have short interpregnancy intervals after cesarean deliveries, in order to plan individualized interventions for them. Very few studies have been done in our state of Rajasthan so this study will be done to identify factors associated with short interpregnancy interval among women with antecedent cesarean deliveries.

Material and methods

Study design: This study was Hospital based Cross-sectional Study done in Department of Obstetrics & Gynaecology, SMS Medical College, Jaipur.

Duration of study: the period of study was from November 2022 to July 2024. (After taking the approval from institutional review board of ethical committee

Sample Size: Sample size was calculated as 94 as previous study shows OR of breast feeding is 3.33 and prevalence in unexposed is 76.9 for 80 percent power and .05 Alpha errors. Sample size is enhanced to 100

Study Universe: All pregnant women attending Antenatal Care unit.

Study population: Pregnant women with history of previous caesarean Section in antecedent pregnancy after applying inclusion and exclusion criteria and obtaining informed consent.

Inclusion Criteria

- Pregnant women with antecedent cesarean section.
- Who understand and are willing to participate in the study and give informed written consent.
- Not participating in other study.

Methodology

Approval from Institutional Research Review Board and Ethical committee was taken prior to study. All women attending ANC were evaluated and after applying inclusion criteria, 200 women with history of antecedent cesarean delivery who were willing to 18 Material and Methods participate were recruited in the study. Written informed consent was taken for all women included in

the study. Study population was divided in two groups according to interpregnancy interval.

Group A: Women with short interpregnancy interval 24 months (n=100) Detailed history was taken from all women.

1. Maternal Characteristics

(A) Demographic profile:

- Age
- Socio-economic status
- Literacy status
- Religion
- Residence

(B) Obstetric history:

- Gravida
- Parity
- No of caesarean delivery
- Outcome of last delivery: Sex of the child, Alive or IUFD/SB
- Interpregnancy interval

(C)Breastfeeding practice in Last Delivery

- Breastfeeding - Yes/no
- Exclusive breastfeeding - Yes/no
- Duration of breastfeeding

(D) Contraceptive use after past delivery

(E) Resumption of coitus after delivery

(F) Return of menstruation after delivery

Data Collection, Compilation and Statistical Analysis

All Data were collected, entered in MS Excel sheet and statistically analysed. Numerical data were represented as mean and standard deviation and qualitative data represented by percentage of proportion. Unpaired T test, one way ANOVA test and Pearson Correlation coefficient were used for analysis of continuous variables. Fischer Exact test or Chi-square test used for nominal/categorical variables. P value <0.05 taken as significant. Med calc 16.4 version software used for statistical calculation.

Results and Discussion

Table 1: Socio-demographic factors as Determinant of short pregnancy interval

Variables	Short birth interval		Odd Ratio
	Yes	No	
Age in Years			
<25	51	25	3.1224; (1.7156–5.6829), p - 0.0002
>25	49	75	
Residence			
Rural	40	60	4.0952; (2.0496–8.1827), p -0.0001
Urban	14	86	
Religion			
Muslim	38	15	3.4731; (1.7570–6.8654), p – 0.0003
Hindu	62	85	
Literacy Status			
Illiterate	59	33	2.9217; (1.6413–5.2009), p-0.0003
Literate	41	67	
Socio-economic Staus			
Low	48	29	2.6897; (1.3540–5.3429), p- 0.004
Middle	28	32	1.4; (0.6933–2.9159), p – 0.3
Upper	24	39	1
Age at marriage (Years)			
<20	66	16	
≥20	34	84	10.1912; (5.1835–20.0366), p - <0.0001
Duration of married life (Years)			
<5	49	47	1.0834; (0.6220–1.8871), p –0.7
≥5	51	53	

In this study 67.1% women in age group 20 – 25 years had short interpregnancy compIared to 39.5% women above 25 years. Women residing in rural area (74.1%) had short interpregnancy interval as compared to 41.1% women residing in urban area. Muslim women were more likely to have short interpregnancy interval (71.7%) compared to Hindu women (42.2%). Illiterate women (64.1%) were more likely to have short interpregnancy interval compared to their literate counterpart (37.9%). Women belonging to low socio-economic status (62.3%) were more likely to have short interpregnancy interval compared to women belonging to middle and upper socio-economic status (42.3%). Women who were married before the age of 20 years (80.5%) were more likely to have short interpregnancy interval compared to 28.8% who were married after the age of 20 years.

Table 2: Obstetric factors as Determinant of short pregnancy interval

Variables	Short birth interval		Odd Ratio
	Yes	No	
Gravida			
2	92	82	2.5244; (1.0424-6.1131), p – 0.04
>2	8	18	
Previous Pregnancy Outcome			
IUFD/SB	10	2	5.4444; (1.1614-25.5219), p – 0.03
Live birth	90	98	
Desire to have more children			
Yes	80	64	2.2500; (1.1890-4.2579); p-0.01
No	20	36	
Preference of Sex of the baby			
Male	54	32	2.4946;(1.4030-4.4354), p - 0.001
Female	46	68	
Sex of the preceding child			
Female	66	41	2.7934; (1.5727-4.9616), p – 0.0005
Male	34	59	
Contraceptive methods used in the past			
Not used	77	24	10.6014; (5.5131 to 20.3860), p - < 0.0001
Used	23	76	
Planned current pregnancy			
No	75	37	5.1081; (2.7810-9.3825), P - <0.0001
Yes	25	63	

Women who were gravida 2 (52.9%) were more likely to have short interpregnancy interval compared to women who were gravida 3 or 4 (30.7%).

Women with IUFD or still birth in previous pregnancy (83.3%) were more likely to have short interpregnancy interval compared to women who had live birth in previous pregnancy (47.9%). 55.6% women who desired to have more children had short interpregnancy interval compared to 35.7% women who did not desire to have more children.

Women who had preference for male child in present pregnancy (62.8%) had short interpregnancy interval compared to 40.3% women who had preference for female child in present pregnancy. Women who had female child (55.7%) in preceding delivery had short interpregnancy interval compared to women who had male child (36.5%) in preceding delivery.

Women (77.4) who did not breast fed their child had short interpregnancy interval compared to women (44.9%) who initiated breastfeeding in last delivery. Out of 137 women who exclusively breast fed their child, 55.4% women had long interpregnancy interval compared to 38.1% women who did not practice exclusive breast feeding had long interpregnancy interval. 86% women who breast fed their child for more than 12 months had long interpregnancy interval compared to 12.8% women who breast fed their child for < 12 months.

Out of 101 women who did not use any contraceptive methods in the past, 76.2% women had short interpregnancy interval while out of 99 women who used contraceptive methods 76.8% women had long interpregnancy interval.

Out of 156 women who resumed sexual activity within 1 -3 months of delivery, 58.9% women had short interpregnancy interval while out of 44 women who resumed sexual activity after 4 months of delivery 81.8% women had long interpregnancy interval. Out of 112 women who did not plan current pregnancy, 66.9% women had short interpregnancy interval compared to 28.4% women who planned current pregnancy.

Out of 64 women who always decide together with their husband on when to have the next child, 79.7% were having longer interpregnancy interval compared to 36.1% women who never or sometimes decide together with their husband.

Out of 102 women whose husband have influence on when to have next baby, 59.8%women had longer interpregnancy interval compared to 39.7% women who have no influence of their husband.

Observation

100 women with short interpregnancy interval (24 months, who were willing to participate in the study and fulfilling the eligibility criteria for inclusion in the study were selected.

In present study women who were young (<25 years) were 3.1 times more likely to have short interpregnancy interval compared to women who were >25 years of age.

This could be for two reasons. The first reason is women in old age are more likely to reach their desired number of family size, and they are also less likely to be fecund compared to the lower age. The second reason could be women in early age are less likely to use contraceptive as they desire to bear a child. women residing in rural area were 4.09 times more likely to have short interpregnancy interval compared to their urban counterparts.

women who were illiterate were 2.92 times more likely to have short interpregnancy interval compared to literate counterparts. Maternal education has protective effect for short birth interval practice. This might be due to the fact that women with more education are more likely to use contraception to prolong their birth intervals and may have access to information as well. In addition, educated women are more likely to be engaged in occupations that are not readily compatible with bearing children. Under this circumstance, therefore, education is expected to lengthen birth intervals.

Women who belonged to low socio-economic status were 2.68 times more likely to have short birth interval practice as compared to those who belonged to middle and upper socio-economic status. This is plausible because women from the poorest economic class have a greater chance of practicing sub-optimal child spacing because of a lack of easy access to maternal services because of the inability to pay for services and transportation.

Who were second gravida were 2.5 times more likely to have short interpregnancy interval than women who were gravida 3 or 4. Women who had a higher number of live children were 3.1 times more likely to have practiced sub-optimal child spacing in this study. women who had IUFD or stillbirth in previous pregnancy were 5.44 times more likely to have short interpregnancy interval than women who live child.

Women who were not using any contraceptives were 10.6 times more likely to have short interpregnancy interval than women who were using any type of contraceptives.

Women who had female child in their last delivery were 2.7 times more likely to have short interpregnancy interval than women who had male child in their last delivery. Women who had preference for male child was 11.25 times more likely to have short interpregnancy interval compared to women who had preference for a female child. Preference for a son is widespread in North Africa, East and South Asia, and the Middle East. In these regions, people reportedly prefer sons because they earn more, they perpetuate the family line, and they are recipients of the family inheritance. One of the included studies commented that Ethiopian families see a son as an economic asset. women who did not plan current pregnancy were 5 times more at risk of having short interpregnancy interval compared to women who planned urrent pregnancy.

Conclusion

In this study, women who were young (below 25 years), Muslim, resident of rural area, illiterate, low socio-economic status with previous history of IUFD/SB were more likely to have short interpregnancy interval. Women who were not using contraceptives, not planning for pregnancies, not deciding together with their husbands about when to have the next child, and lack of influence of husband on when to have the next baby had female child in last delivery and had preference for male child were also more likely to have short interpregnancy interval. Exclusive breastfeeding and duration of breastfeeding for more than 12 months were protective. As interpregnancy interval is a modifiable risk factor, interventions to enhance contraceptive utilization behaviours, encouraging maternal education,

encouraging breastfeeding among women would be helpful to narrow the gap between optimal and actual birth spacing. Awareness raising and cultural promotion of parents should also be made to avoid sex based intervals.

References

1. Owonikoko, K.M., Adeniji, O., Oke, O.F., Fawole, A.A. and Adeniji, A.O. Determinants of Inter-Pregnancy Interval in Ogbomoso: An Unmet Need for Contraceptive Usage. International Journal of Reproduction, Contraception, Obstetrics and Gynecology2015;4:316-321.
2. Wendta, A., Gibbsb, C.M., Petersb, S. and Hogue, C.J. Impact of Increasing InterPregnancy Interval on Maternal and Infant Health. Paediatric and Perinatal Epidemiology. 2012; 26: 239-258. https://doi.org/ 10.1111/j.1365-3016.2012.01285.x
3. World Health Organization. Report of a WHO technical consultation on birthspacing: Geneva, Switzerland 13–15 June 2005. World Health Organization;2007. https:// www. who. int/ reproductive health/ publications/ family_planning/ WHO_R HR_07_1/en/. Accessed 28 Mar 2022.
4. Pimentel J, Ansari U, Omer K, Gidado Y, Baba MC, Andersson N, et al. Factors associated with short birth interval in low- and middle-income countries: a systematic review. BMC Pregnancy Childbirth. 2020;20(1):156. doi: 10.1186/s12884-020-2852z.
5. Conde-Agudelo A, Rosas-Bermúdez A, Kafury-Goeta AC. Effects of birthspacing on maternal health: a systematic review. Am J Obstet Gynecol. 2007;196(4):297–308. doi: 10.1016/ j.ajog. 2006.05.055.
6. Stamilio DM, DeFranco E, Paré E, Odibo AO, Peipert JF, Allsworth JE, et al. Short interpregnancy interval: risk of uterine rupture and complications of vaginal birth after cesarean delivery. Obstet Gynecol. 2007;110(5):1075–1082. doi: 10.1097/ 01.AOG. 0000286759.49895.46.
7. Alison Gemmill, Laura Duberstein Lindberg. Short Interpregnancy Intervals in the United States. 2013 July; 122(1): 64– 71. doi:10.1097/ AOG. 0b013 e3182955e58