ORIGINAL ARTICLE

Frequency of Short Interpregnancy Interval in Females with Preterm Birth

MADIHA ASHFAQ[1], ABDUL MATEEN[2], HIRA MATEEN[3], *ASIF HANIF[2]*

ABSTRACT

Aim: To find the frequencies of short interpregnancy interval (IPI) in women with preterm births.
Methods: This cross sectional study was done at RHC Manga Mandi, District Lahore. The study was done in 3 months and data was collected using non-probability consecutive sampling. A total of 150 subjects delivered preterm birth with aged 18-35 years with previous one pregnancy without last history of abortion. The time gap between first birth and date of corresponding higher order births or in a technical term Labeled Index Pregnancy was determined as inter-pregnancy interval. The statistical analysis of our data is thoroughly analysed in SPSS 22.
Results: The mean age of all females was 27.47 ± 4.877 years with minimum and maximum age of 18 and 35 years. The average interpregnancy interval was 15.540 ± 5.33 with minimum and maximum interpregnancy interval as 6 and 24 months. According definition the short interpregnancy interval (≤ 18 months) was seen in 117(78%) of the cases.
Conclusion: Through the findings of this study we conclude that short IPI is common in females with preterm birth i.e. 117(78%) of the cases. Proper family planning and use awareness regarding consequence of short IPI are yet needed to minimize the risk of poor fetal and maternal outcome.
Keywords: birth spacing, family planning, prematurity, gestational age

INTRODUCTION

We can define preterm birth usually as birth occurring in the gestational time of less than 37 weeks or 259 days of normal gestation[1]. Preterm birth is prevalent up to 5% to 7% of among live birth in urbanized countries[2]. There are various risk factors for preterm birth which various are modifiable like interpregnancy interval. The awareness and implementation of complete birth spacing has increased significantly among women and children in developing countries.[3]Interpregnancy interval is time gap between first child birth and conception time of next pregnancy[4].The interval is estimated as the difference between the date of delivery of the current pregnancy and that of the previous pregnancy minus the gestational age of the current pregnancy[5]. There is different definition for short IPI and long when it is greater than 5 years[6].

Various studies are done in which short IPI are discussed in in relation todifferent fetomaternal outcome. It is a usual observation that women with a short IPI do not have enough time for health and other recoveries for next pregnancy.There are various causes of SIPI that includes cultural, socio-economic and psychological[7]. This study is designed in rural setup where females usually have low antenatal visits and few modifiable risk factors related to preterm birth are observed in which short interpregnancy interval is commonly seen so we designed this study to see frequency of short interpregnancy interval in females delivering preterm birth.

[1,]Woman Medical Officer: RHC Manga Mandi, District Lahore
[2] Medical Officer: RHC Manga Mandi, District Lahore
[3]WMO. Muslim Hospital, Lahore
[2]Asst. Prof and HOD: Biostatistics: Gulab Devi PGMI, Lahore
Correspondence toDr. Madiha Ashfaq, Email: Madihaashfaq123@gmail.com Cell: 0300-4886185

MATERIALS AND METHODS

This cross sectional study was done at RHC Manga Mandi, District Lahore. The study was done in 3 months and data was collected using non-probability consecutive sampling. A total of 150 subjects delivered preterm birth with aged 18-35 yearswith previous one pregnancy without last history of abortion. Females not willing to participate in the study were excluded from the study. After taking an informed consent from all subjects their age, parity and gestational age in weeks was taken. The time gap between first birth and date of corresponding higher order births or in a technical term Labeled Index Pregnancy was determined as inter-pregnancy interval. The statistical analysis of our data is thoroughly analyzed in SPSS 22. Qualitative data/discreet data such as parity and short inter pregnancy interval (as per operational definition) was presented in form frequency (%). Quantitative data such as maternal age (years) and gestational age (weeks) was presented mean±S.D.

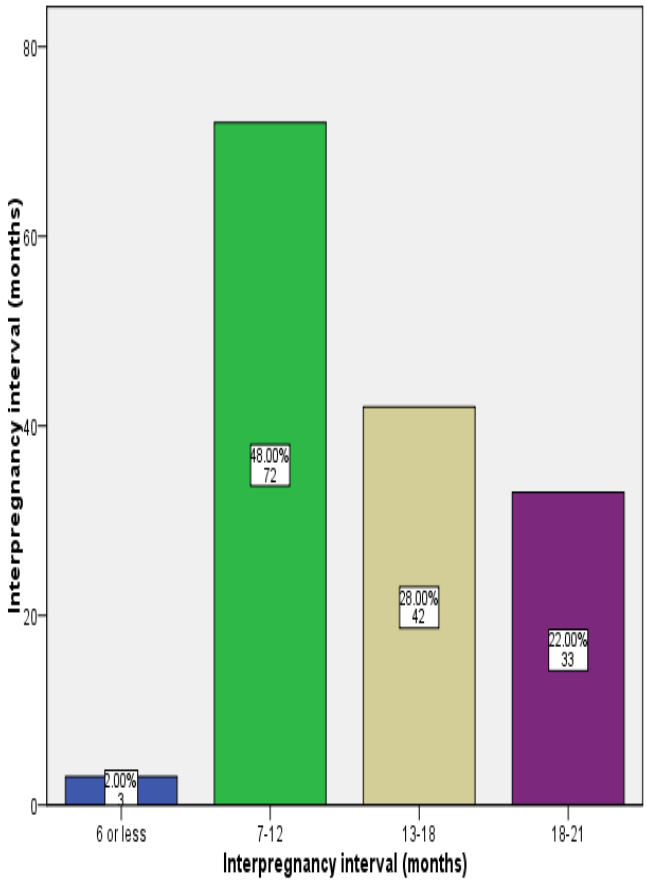
RESULTS

The mean age of all females was 27.47±4.877 years with minimum and maximum age of 18 and 35 years. The duration of marriage was 5.7± 3.25 years with mean parity of 2.22±1.40 (1 and 7 as minimum and maximum parity). The average interpregnancy interval was 15.540±5.33 with minimum and maximum interpregnancy interval as 6 and 24 months. According definition the short interpregnancy interval (≤ 18 months) was seen in 117(78%) of the cases. On further categorization we observed that 3(2%) females had ≤ 6 months, 72(48%) 7-12 months, 42(28%) females had 13-18 months and 33(22%) had ≥ 18 months of interpregnancy interval.

Table1: Descriptive Statistic of quantitative variables

	Mean	S.D	Range	Min.	Max.
Age (years)	27.47	4.877	17	18	35
Duration ofmarriage (yrs)	5.70	3.25	13.5	1.5	15.0
Inter pregnancy interval (Months)	15.54	5.33	18.0	6.0	24.0

Fig-1: Description of interpregnancy interval



DISCUSSION

In this study we took females delivered preterm birth from age 16 to 35 years with mean age of 27.47±4.877 years. In literature it reported that mothers 35 years or older at start of childbearing have the highest risk of poor fetomaternal outcome compared to mothers aged 20 to 29 years, even after controlling for potential confounders.[8]When studies on effect of IPI on still birth and neonatal death of feotus are analysed they are found to be quite different from each other. [9]As the adverse outcomes for women in pregnancy are significantly more when short IPI is present so different new adverse mechanisms have evolved such as Maternal Depletion that includes nutritional suppression of following pregnancies and reduced lactation,[10] hormonal levels upsetting or fluctuations,[11] and subsequent stress during postpartum[12]; recent study by Smits and Essed[13] clearly assumes that depletion of maternal folate depletion induces more adverse outcomes in pregnancy.In addition to this several maternal factors such as poor socioeconimical status of women, smoking and some other characteristics may be associated with increases inter-pregnancy intervals.[13]In this study IPI ≤ 18 months was seen in 117(78%) of the cases. On further categorization we observed that 3(2%) females had ≤ 6 months, 72(48%) 7-12 months, 42(28%) females had 13-18 months and 33(22%) had ≥ 18 months of interpregnancy interval. A recent study published in BJOG was published on 454,716 births, 87% of population showed a normal IPI of greater than or equal to 18 months, 10.7% of population had IPI between 12 to 18 months of gestation and 2.2% had short IPI of IPI<12 months. The risk of early delivery was higher following short IPI<12 months.[14] Our findings are comparable with above cited statistics. Previous study reported that Short interval interpregnancy (≤6 months) was seen in 11.02% in female's preterm delivery (< 37 weeks). [15] Moreover one more study reported that of short IPI was 9.74% in preterm birth (gestation age less than 37 weeks). [16] We found less no of females having IPI ≤ 6 as compared to these studies.

Various risk factors are considered for short IPI for example learning and awareness among women as well as their low socioeconomic factor has a parallel effect on birth interval time by influencing some of bio-behavioral factors.[17, 18]Hence there are some notable differences between IPI of urban and rural women that shows women living in rural areas have less chances of IPI more than five years.Hence in future for females with short IPI, additional attention for the prolongation of pregnancy should be given to during antenatal visits.

CONCLUSION

Through the findings of this study we conclude that short IPI (≤ 18 months) is common in females with preterm birth i.e., 117(78%) of the cases. Proper family planning and use awareness regarding consequence of short IPI are yet needed to minimize the risk of poor fetal and maternal outcome.

REFERENCES

1. Howard EJ, Harville E, Kissinger P, Xiong X. The association between short interpregnancy interval and preterm birth in Louisiana: a comparison of methods. Matern Child Health J 2013;17(5):933-9.
2. Beck S, Wojdyla D, Say L, Betran AP, Merialdi M, Requejo JH, et al. The worldwide incidence of preterm birth: a systematic review of maternal mortality and morbidity. Bulletin of the World Health Organization 2010;88(1):31-8.
3. Bener A, Saleh NM, Salameh KMK, Basha B, Joseph S, Samson N, et al. The impact of the interpregnancy interval on birth weight and other pregnancy outcomes. Revista Brasileira de Saúde Materno Infantil 2012;12(3):233-41.
4. Conde-Agudelo A, Rosas-Bermúdez A, Kafury-Goeta AC. Birth spacing and risk of adverse perinatal outcomes: a meta-analysis. Jama 2006;295(15):1809-23.
5. Nabukera SK, Wingate MS, Kirby RS, Owen J, Swaminathan S, Alexander GR, et al. Interpregnancy interval and subsequent perinatal outcomes among women delaying initiation of childbearing. Journal of Obstetrics and Gynaecology Research 2008;34(6):941-7.
6. Smith GC, Pell JP, Dobbie R. Interpregnancy interval and risk of preterm birth and neonatal death: retrospective cohort study. Bmj 2003;327(7410):313.
7. Lilungulu A, Matovelo D, Kihunrwa A, Gumodoka B. Spectrum of maternal and perinatal outcomes among parturient women with preceding short inter-pregnancy interval at Bugando Medical Centre, Tanzania. Mat Health, Neonatol and Perinatol 2015;1(1):1-7.
8. Eleje GU, Ezebialu I, Eke N. Inter-Pregnancy Interval (IPI): What Is The Ideal? Afrimedic Journal 2013;2(1):36-8.
9. Miller JE. Birth intervals and perinatal health: an investigation of three hypotheses. Family planning perspectives 1991:62-70.
10. Winkvist A, Rasmussen KM, Habicht J-P. A new definition of maternal depletion syndrome. American journal of public health 1992;82(5):691-4.
11. Basso O, Olsen J, Knudsen LB, Christensen K. Low birth weight and preterm birth after short interpregnancy intervals. American journal of obstetrics and gynecology 1998;178(2):259-63.
12. Ekow EE, Moawad A. The relationship of interpregnancy interval to the risk of preterm births to black and white women. International journal of epidemiology 1998;27(1):68-73.
13. Smits LJ, Essed GG. Short interpregnancy intervals and unfavourable pregnancy outcome: role of folate depletion. The Lancet 2001;358(9298):2074-7.
14. DeFranco EA, Ehrlich S, Muglia LJ. Influence of interpregnancy interval on birth timing. Bjog 2014;121(13):1633-40.
15. Rodrigues T, Barros H. Short interpregnancy interval and risk of spontaneous preterm delivery. Eur J Obstet Gynecol Reprod Biol 2008;136(2):184-8.
16. Grisaru-Granovsky S, Gordon E-S, Haklai Z, Samueloff A, Schimmel MM. Effect of interpregnancy interval on adverse perinatal outcomes—a national study. Contraception 2009;80(6):512-8.
17. Shachar BZ, Lyell DJ. Interpregnancy interval and obstetrical complications. Obstetrical & gynecological survey 2012;67(9):584-96.
18. Yohannes S, Wondafrash M, Abera M, Girma E. Duration and determinants of birth interval among women of child bearing age in Southern Ethiopia. BMC pregnancy and childbirth 2011;11(1):38.