Original Article

Frequency of Anemia in Females with Short Interpregnancy Interval

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ABSTRACT

Objective: To determine the frequency of anemia in pregnant women having short interpregnancy interval.
Study Design: Cross-sectional study
Place and Duration of Study: This study was conducted at the Department of Gynae, Lady Willingdon Hospital, Lahore from 1st January 2022 to 30th June 2022.
Materials and Methods: Two hundred and twenty five females meeting inclusion criteria were included in the study. Basic information like age, parity, gestational age at enrolment was noted after taking an informed consent. All the pregnant women with short interpregnancy interval as per operational definition were included in the study. From all females three milliliters of venous blood sample was drawn and sent to the hospital laboratory for hemoglobin assessment. After analysis, anemia was labeled. All patients diagnosed with anemia were treated as per standard guidelines.
Results: One hundred and fifty five **(**68.89%) were between 20-30 years of age whereas 70 (31.11%) were between 31-40 years of age with mean was 28.27±4.81 years. The frequency of anemia in pregnant women having short interpregnancy interval was recorded as 193 (85.78%).
Conclusion: The frequency of anemia is higher in pregnant women having short interpregnancy interval, however, our research needs validation through multicenter trials.

Key Words: Short interpregnancy interval, Outcome, Maternal anemia

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INTRODUCTION

Interpregnancy interval(IPI) is the time between the end of one pregnancy and the start of the next.[1] Normal inter pregnancy interval is said to be there if length between two successive live births is between 18 to 36 months.[2-3] Short inter-pregnancy interval (SIPI) is there if the duration is less than 6 months.[4] Optimal spacing between pregnancies has more health advantages for both mother and child, which provide an opportunity to the mother for recovery from the burden of pregnancy, labor and lactation. Longer time period incurred between births, allows the next pregnancy and birth to be a one with a fully grown, healthy term fetus.[4-5]

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Various studies have also indicated that optimum birth interval can improve the health profile of children.[4] A recent study has reported that an interpregnancy interval of 12-60 months between birth and onset of next pregnancy is associated with a better outcome. Education of the masses on large scale to optimize birth spacing can go a long way to decrease infant mortality for both white and black mothers. Ideal interpregnancy interval calls for an important period which helps the mother to recover from the effects of pregnancy and to enter the next pregnancy in a replenished state.[1, 5]

Short inter-pregnancy interval may hamper the process of maternal recovery and cause adverse conditions in the next pregnancy, such as anemia.[6] As anemia is one of the commonest medical problem, which if severe has a deleterious effect on pregnant mother.[7] Anemia with an prevalence of around 35-75% among pregnant women is considered to be a leading cause of maternal mortality in developing nations .[8] So, it is imperative to know whether SIPI is a true independent risk factor for anemia as well as for adverse pregnancy outcomes.[9-10] Optimum births spacing can be improved by educating mothers during prenatal visits `and the post-partum era.[9-10] A local study was done on ninety pregnant females and they found anemia was noted in 74(82.2%) cases.[3]

The current study is designed to find frequency of anemia in females with SIPI in local population. The data in local set up is unavailable in this context. A study was done on smaller sample of females i.e. 90 and they found high percentage of anemia i.e. 82.2%[4] in females with shot interpregnancy interval. We in current study will take larger sample size and the study will help us to redesign the strategies. As SIPI is thought to be modifiable risk factor of anemia and after improving it we can reduce the related complication of anemia during pregnancy and in females with SIPI preventive strategies can be designed to reduce the risk of poor pregnancy outcome.

MATERIALS AND METHODS

It was a cross-sectional study conducted at Gynecology Unit 1, Lady Willingdon Hospital Lahore from 1st January 2022 to 30th June 2022. A total of 225 females were taken and sample size is estimated using frequency of anemia as 82.2%.[4] We used 5% margin of error and 95% confidence level. Females aged 18-40 years, parity >1, females presenting with SIPI during 1st or 2nd trimester (gestational age <24 weeks) visiting for regular checkup were included in the study. Multiple pregnancy (on USG), antenatal bleeding (on history), hyperemesis gravidarum and patients with previous history of miscarriage/preterm birth (on history) were excluded. Their basic information like age, parity, gestational age at enrollment was taken after taking an informed consent. All the pregnant women with short interpregnancy interval as per operational definition were included in the study. From all females three milliliters of venous blood sample was drawn and dispatched to the hospital laboratory for Hb analysis, anemia was labeled. The data was recorded. All patients diagnosed with anemia were treated as per standard guidelines. All collected data was entered and analyzed using SPSS version 22.

RESULTS

There were 155 (69.69%) patients between 20-30 years and 70 (31.11%) patients between 31-40 years, 14 (6.22%) patients have gestational age upto 12 weeks and 211 (93.78%) patients have between 13-24 weeks. Two hundred women (88.89%) have between 2-4 parity and 26 (11.11%) have >4 parity. Educational status shows that 58 (25.78%) illiterate, 78 (33.78%) primary, 60 (26.67%) middle and 31 (13.77%) were above middle. Twenty six (11.56 %) had income <10,000/- month and 199 (88.44%) had income 10-50,000/- month. One hundred and seventeen (52%) patients lived in rural areas and 108 (48%) in urban urban areas (Table 1). The mean age was 28.27±4.81 years, mean gestational age was 18.74±3.71 weeks, mean parity was 2.96±0.98, mean Hb level was 9.18±4.71gm/dl and mean body mass index was 29.39±2.93 kg/m^2 (Table 2). Frequency of anemia in pregnant women having short interpregnancy interval was 193 (85.78%) whereas 32 (14.22%) had no findings of the morbidity (Table 3).

Table No.1: Demographic information of the patients (n=225)

Variable	No.	%
Age (years)		
20 – 30	155	68.89
31 – 40	70	31.11
Gestational age (weeks)		
Upto 12	14	6.22
13 – 24	211	93.78
Educational status		
Illiterate	55	25.78
Primary	78	33.78
Middle	60	25.67
Above middle	31	13.77
Socioeconomic status (rupees)		
<10,000	26	11.56
10,000 – 50,000	199	88.44
Living area		
Rural	117	52.0
Urban	108	48.0

Table No.2: Descriptive statistics of the patients (n=225)

Variable	Mean±SD
Age (years)	28.27±4.81
Gestational age (weeks)	18.74±3.71
Parity	2.96±0.98
Hemoglobin level (gm/dl)	9.18±4.71
Body mass index (kg/m^2)	29.39±2.93

Table No.3: Frequency of anemia in pregnant women having short interpregnancy interval (n=225)

Anemia	No.	%
Yes	193	85.78
No	32	14.22

DISCUSSION

The time duration between one pregnancy and the next may be responsible for various adverse outcomes. In the mothers with shortened birth interval the changes of last pregnancy do not reverse and reach to baseline. Maternal reserves are not replenished in short time. When a woman enters her next pregnancy with a compromised status, the incidence of various fetomaternal conditions is increased.[11]

In the present study, anemia having short interpregnancy interval was 193 (85.78%). The findings of our study are consistent with two local studies in which anemia was noted in 82.2% and 75% cases respectively.[3,12]

In another retrospective cohort study based on data from Duren Sawitt District community health Centre, it

was seen that short interpregnancy interval is an independent risk factor for anemia. The reasons could be risk of hemorrhage during pregnancy and depleted iron stores .This study also proves our point.[5]

A large study comprising of data from 18 Latin American countries reported a 30% increase in maternal anemia after Inter pregnancy interval less than six months, while previous and smaller studies were unable to find a significant association.[11-13]

Short IPI has also been linked with other important causes of anemia, such as third-trimester bleeding from placental abruption or placenta previa in the subsequent pregnancy.[14]

In a recent study recurrent short IPI has been seen to be associated with maternal anemia and small for gestational age neonates. SIPI is also associated with congenital defects especially in the absence of folic acid supplementation.[1, 15]

In another case control study it was seen that SIPI is associated with high risk of anemia, Prematurity, scar dehiscence, and low birth weight. This finding also seconds our claim.[6]

In a local study conducted by Mubasher and colleagues[17] at Sargodha, Anemia was found in around 75 percent of the pregnant females with SIPI. Riyanto and colleagues[5] also concluded that SIPI is an independent risk factor for anemia in pregnancy.

In a recent study conducted in Ethiopia found that SIPI is associated with stunting and low birth weight babies. This effect was mediated by maternal anemia which was actually related to SIPI.[18]

Considering the above results, it is clarified that short interpregnancy interval is significantly associated with the risk of maternal anemia, however, more multi-center trials are required to validate our results.

CONCLUSION

Higher anemia frequency is seen in pregnant women having short interpregnancy interval, however, our research needs validation through multicenter trials.

Author's Contribution:

Concept & Design of Study:	Zobia Jawad, Rabia Wajid
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Final Approval of version:	Zobia Jawad, Rabia Wajid

Conflict of Interest: The study has no conflict of interest to declare by any author.

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