ASSOCIATION OF SHORT INTERPREGNANCY INTERVAL (IPI) WITH MATERNAL ANEMIA AT A TERTIARY CARE HOSPITAL

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Abstract;

Background; The time interval between pregnancies is considered to be an important and modifiable risk factor in terms of adverse perinatal outcomes. This study was done to determine the frequency of anemia in pregnant women having short interpregnancy interval. **Materials and methods;** All the pregnant women with short interpregnancy interval were registered from Department of Gynecology and Obstetrics, Nishtar Hospital Multan, Pakistan. Examination was done including general physical examination. Those with interpregnancy interval less than 6 months were included in study. Detailed history was taken regarding parity, duration of pregnancy. Duration of gestation was estimated according to patients last menstrual period. Three ml venous blood sample was drawn and sent to the pathology laboratory of Nishtar Hospital Multan for Hb levels analysis. Data was entered and analyzed by SPSS version 20. **Results;** Mean age of our study cases was noted to be 27.83 ± 4.95 years (with minimum age of our study cases was 21 years while maximum age was noted to be 38 years). Of these 90 study cases, 51 (56.7%) were from rural areas, 73 (81.1%) were normal weight 11(12.2%) were overweight and 6 (6.7%) were obese. Seventy eight (86.7%) were illiterate. Of these 90 study cases, 73 (81.1%) were having poor socioeconomic status, 11 (12.2%) were diabetic and 17 (18.9%) were hypertensive. Mean body mass index (BMI) of our study cases was noted to be 22.31 ± 2.07 Kg/m^2. Mean gestational age of our study cases was noted to be 24.02 ± 8.31 weeks. Mean Hb level was noted to 10.67 ± 0.893 g/dl (with minimum Hb level was 9.6 g/dl while maximum Hb level was 12.5 g/dl). Mean interpregnancy interval was 4.23 ± 0.98 months (with minimum interpregnancy interval was 2.5 months while maximum interpregnancy interval was 6 months). Anemia was noted in 74 (82.2%) our study cases and only 23 (25.6%) of our study cases were taking iron supplements. **Conclusion;** Short interpregnancy interval less than 6 months is related with adverse pregnancy outcomes. Very high frequency of anemia was noted in our study cases having interpregnancy interval less than 6 months. Anemia was significantly associated with residential status, hypertension and iron supplementation. Birth spacing is an issue which women should have some control over. Educational interventions, including birth control, should be applied during prenatal visits and following delivery.

Keywords; Short interpregnancy Interval, anemia, hemoglobin.

Introduction:

Anemia, defined as a decreased concentration of blood hemoglobin, is one of the most common nutritional deficiency diseases observed globally and affects more than a quarter of the world's population [1]. It is a major public health problem affecting all ages of the population with its highest prevalence among children under five years of age and pregnant women [1, 2]. Globally, anemia affects 1.62 billion people (25%), among which 56 million are pregnant women [3]. Anemia in pregnancy is a major cause of morbidity and mortality of pregnant women in developing countries and has both maternal and fetal consequences. It is estimated that anemia causes

more than 115,000 maternal and 591,000 perinatal deaths globally per year [4, 5]. The time interval between pregnancies is viewed as an important and modifiable risk factor for adverse birth outcomes [6]. It offers a great potential in protecting the health status of the mothers, and improving outcome of subsequent pregnancy [7]. This remains to be a major challenge among women in developing countries associated with increased risk for maternal and neonatal mortality. Traditionally women with a short inter-pregnancy interval will not have sufficient time to recover and get ready for the subsequent pregnancy. This includes socio-economic, cultural, psychological and physical body preparedness. Interpregnancy intervals less than 18 months and greater than 59 months are significantly associated with an increased risk of adverse perinatal outcomes. [8, 9] The biological mechanism between short interpregnancy interval (IPI) and poor maternal and neonatal outcomes is hypothesized to be due to insufficient time for the mother to recover from the nutritional burden and stress of the previous pregnancy. Specifically, depleted maternal protein, low energy status, and deficiencies in folate and iron have been considered [10]. The impact of short IPI is greater in very young women; this is because an immature adolescent who is still growing, may compete with the fetus for nutrients. Pregnant women with short interval have increased risk of uterine rupture or scar dehiscence, failure trial of scar, placenta abruption, placenta previa, antenatal and perinatal infections [11]. Optimal spacing between pregnancies has greater health advantages for both mother and child, which can give an opportunity for the mother to recover from pregnancy, labor and lactation. Longer time period between births allows the next pregnancy and birth to occur more likely to be at full gestation and growth. Studies also revealed optimum birth interval can improve the health status of children. Survival of children could increase each year if all women had optimal birth interval and decrease child mortality[12, 13]. Lilungulu et al [7] reported anemia in 94 % pregnant ladies with short interpregnancy interval.

Materials and methods

All the pregnant women with short inter-pregnancy interval were registered from Department of Gynecology and Obstetrics, Nishtar Hospital Multan, Pakistan. Primigravida, multiple gestations, Patients with known diseases like diabetes and hypertension and patients with previous history of miscarriage / preterm birth were excluded from our study. Examination was done including general physical examination. Those with interpregnancy interval less than 6 months were included in study. Detailed history was taken regarding parity, duration of pregnancy. Duration of gestation was estimated according to patients last menstrual period. Three ml venous blood sample was drawn and sent to the pathology laboratory of Nishtar Hospital Multan for Hb levels analysis. Data was entered and analyzed by SPSS version 20.

Results;

Our study comprised of a total of 90 pregnant ladies having short inter-pregnancy interval meeting inclusion criteria of our study. Mean age of our study cases was noted to be 27.83 ± 4.95 years (with minimum age of our study cases was 21 years while maximum age was noted to be 38 years). our study results have indicated that majority of our study cases i.e. 62 (68.9%) were aged 20 – 30 years of age. Of these 90 study cases, 51 (56.7%) were from rural areas, 73 (81.1%) were normal weight 11(12.2%) were overweight and 6 (6.7%) were obese. Seventy eight (86.7%) were illiterate. Of these 73 study cases, 73 (81.1%) were having poor socioeconomic status, 11 (12.2%) were diabetic and 17 (18.9%) were hypertensive. Mean body mass index (BMI) of our study cases was noted to be 22.31 ± 2.07 Kg/m^2 (with minimum BMI was 19.2 kg/m^2 while maximum BMI was 31.3 kg/m^2). Mean gestational age of our study cases was noted to be 24.02 ± 8.31 weeks (with minimum gestational age was 11 weeks while maximum gestational age was 34 weeks). Mean interpregnancy interval was 4.23 ± 0.98 months (with minimum interpregnancy interval was 2.5 months while maximum interpregnancy interval was 6 months). Mean Hb level was noted to 10.67 ± 0.893 g/dl (with minimum Hb level was 9.6 g/dl while maximum Hb level was 12.5 g/dl). Anemia was noted in 74 (82.2%) our study cases and only 23 (25.6%) of our study cases were taking iron supplements

Discussion;

The time interval between pregnancies is considered to be an important and modifiable risk factor in terms of adverse perinatal outcomes [14 - 15]. Our study comprised of a total of 90 pregnant ladies having short inter-pregnancy interval meeting inclusion criteria of our study. Mean age of our study cases was noted to be 27.83 ± 4.95 years (with minimum age of our study cases was 21 years while maximum age was noted to be 38 years). Our study results have indicated that majority of our study cases i.e. 62 (68.9%) were aged 20 – 30 years of age. A study conducted by Al – Jasmi Fatima et al [16] in UAE women reported maternal age 27.6 ± 4.9 years. These results are similar to that of our study results. Howard et al [10] reported similar findings in women with short interpregnancy interval. Lilungulu et al [7] reported anemia in 23.4 ± 1.7 years mean age of pregnant ladies with short interpregnancy interval which is in compliance with that of our study results. Hussaini et al [17] reported similar findings.

Of these 90 study cases, 51 (56.7%) were from rural areas, 73 (81.1%) were normal weight 11(12.2%) were overweight and 6 (6.7%) were obese. Seventy eight (86.7%) were illiterate. Poor educational status was also reported by Lilungulu et al [7] with 99.1% having up to primary level of education.

Of these 73 study cases, 73 (81.1%) were having poor socioeconomic status, 11 (12.2%) were diabetic and 17 (18.9%) were hypertensive. Lilungulu et al [7] also reported 18 % hypertensive disorders with short interpregnancy interval, which is in compliance with that of our study results.

Mean body mass index (BMI) of our study cases was noted to be 22.31 ± 2.07 Kg/m^2 (with minimum BMI was 19.2 kg/m^2 while maximum BMI was 31.3 kg/m^2). Al – Jasmi Fatima et al [16] reported similar results from UAE.

Mean gestational age of our study cases was noted to be 24.02 ± 8.31 weeks (with minimum gestational age was 11 weeks while maximum gestational age was 34 weeks). Mean Hb level was noted to 10.67 $\pm$ 0.893 g/dl (with minimum Hb level was 9.6 g/dl while maximum Hb level was 12.5 g/dl). Al – Jasmi Fatima et al [16] from UAE reported 10.8 g/dl ranging from 10.1 to 11.8 g/dl. These findings are similar to that of our study results. Anemia was noted in 74 (82.2%) our study cases and only 23 (25.6%) of our study cases were taking iron supplements (Treatment). Lilungulu et al [7] reported anemia in 94 % pregnant ladies with short interpregnancy interval. These findings are similar to that of our study results.

Conclusion;

Short interpregnancy interval less than 6 months is related with adverse pregnancy outcomes. Very high frequency of anemia was noted in our study cases having interpregnancy interval less than 6 months. Anemia was significantly associated with residential status, hypertension and iron supplementation. Birth spacing is an issue which women should have some control over. Educational interventions, including birth control, should be applied during prenatal visits and following delivery.

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