

Prevalence of Anemia and its Main Determinants among Primigravidae in Antenatal Population of a Tertiary Care Hospital of Lahore

RAKSHANDA TOHEED¹, TALHA BIN AYUB², HAFIZA SIDRA ALI³, SABA MUMTAZ⁴, ASIF HANEEF⁵,

ABSTRACT

Aim: To determine prevalence & main determinants of anemia among primigravidae in antenatal population of a tertiary care hospital in Lahore; Pakistan.

Study design: Cross sectional observational.

Place & duration of study: OPD of Lady Aitcheson Hospital/King Edward Medical University, Lahore; from March 2013 to September 2013.

Methodology: 462 primigravidae were included in the study, only those primigravidae were included who fulfilled the inclusion criteria. Histories including relevant questions were recorded in a preformatted questionnaire. Hemoglobin was checked by Sahli's Haemoglobinometer followed by complete blood count by automated haemalyzer. Results were recorded and analyzed.

Results: A total of 462 patients were examined in this study. Prevalence of anemia was 78.1% (361/462), 270/462 (74.79%) had mild anemia, 85(23.54%) moderately anemic, and 6(1.66%) severely anemic. 97.6% were 18-30 years of age and 87% were <37 weeks of gestation. Main determinants of anemia enquired in this study were: residence, education, working status (social factors), no. of meals per day, meat consumption /week, pica, vegetarian / non vegetarian status(dietary factors), menorrhagia, bleeding gums, duration of pregnancy, these were checked and analyzed by Chi-Square test. Urban residence, non working status and low no. of meals/day were found significant statistically (p -value <0.05) for anemia in primigravidae in this study.

Conclusion: High prevalence of anemia in primigravidae was mainly linked with social and dietary factors.

Keywords: Anemia, Determinants, Prevalence, Primigravidae, Pakistan, Tertiary Care Hospital.

INTRODUCTION

Anemia is the comprehensive health dilemma affecting 1.62 billion people in both developed and developing countries¹, of them 56 million are pregnant women particularly affected by anemia². Anemia is a multifactorial concern; though iron deficiency is the commonest reason for anemia and therefore commonest dietary disorder, affecting more than two billion citizens globally. Even in developed countries 30-40% pregnant women and preschool children have iron deficiency³. Women are more susceptible due to loss of iron during menstruation, augmented demand throughout pregnancy, gender bias, poverty, these facts are replicated in WHO report on Anemia that anemia has moderate to

severe extent of dilemma for pregnant women in all of WHO member states¹. Deprived nourishment, detrimental eating lifestyle, Pica and parasitic infestations particularly malaria, rural residence are other reasons^{4,5,6}.

Multi parity has been repeatedly related with anemia though in a number of studies primigravidae have been found anemic mainly teen age girls⁷. In Pakistan the condition is more crucial on account of comparatively younger population (35% under 15 years of age), adolescent fertility rate of 16/1000 women, antenatal coverage of 27% (World Health Statistics 2012). Obstetrical inferences of anemia in pregnancy in terms of high maternal and perinatal morbidity & mortality are anticipated and documented. Like increased vulnerability to infectivity's, abruption placentae, threat of preterm birth, increased peripartum blood loss, low birth weight. Women between 15-29 years age group transmit elevated threat of anemia related mortality³. Hemoglobin level of 8.9 grams/ deciliter doubles the risk of maternal mortality⁸.

Primigravidae comprise a high hazard cluster for anemia, pre eclampsia, low birth weight and fetal

¹Associate Professor, Gynecology & obstetrics, Avicenna Medical College, Lahore.

²Postgraduate Trainee MRCP (Pace) East Medical Ward Mayo Hospital Lahore.

³Postgraduate Trainee FCPS, Lady Aitcheson Hospital Lahore.

⁴PG Trainee, East Medical Ward Mayo Hospital Lahore.

⁵Assistant Professor Biostatistics, PGMI, Lahore.

Correspondence to Dr. Rakhshanda Toheed, Associate Professor, 913-Z, Phase III, DHA, Lahore, Cantt. Cell 0300-8455568, Email: rtoheed@gmail.com

growth restriction⁹. In primigravidae, teenage girls are twice as likely to die of pregnancy associated complications¹⁰. *Preventing anemia in primigravida of today is in fact preventing anemia in multigravida of tomorrow.*

MATERIAL AND METHODS

This cross sectional observational study was carried out in Out Patient Department Lady Aitcheson Hospital /King Edward Medical University Lahore, Pakistan. Total patients in this study were 462 calculated according to statistical formula with 95% confidence interval. Sample was selected by convenient sampling method. This study carried out from March 2013 to September 2013. All primigravidae were included in the study except those with known haemoglobinopathies, and those unwilling to participate in study. It was collected by using pre tested and pre designed then formatted questionnaire; including histories relevant questions, hemoglobin status tested by using Sahli's Haemoglobinometer followed by complete blood count by automated haemalyzer were recorded. All data were analyzed through using descriptive statistics and Chi Square test. Results were generated and documented.

RESULTS

The mean age of all cases was 22.59 ± 3.17 years and mean gestational age was 28.88±7.41 weeks. The mean hemoglobin level of all females was 9.98±1.10. In this study the prevalence of anemia (Hb<11) was 78.1% (361 out of 462 pregnant females). Among anemic females, 270(74.79%) had mild anemia (10.9-8.9), 85(23.54%) females had moderate (9-7) and 6(1.66%) cases had severe anemia (<7). Most of the cases (97.6%) were 18-30 years of age and <37 weeks of gestation was more prevalent i.e. 87%. No meat consumption per week was reported by 34.2% of the case and 48.9% cases had 1-2 number of meals per day.

We found significant association of anemia with urban residence (70.36%) as compared to rural (29.64%) residents. Non working status (97.78%) was also associated with anemia as compared to working women (2.22%), p-value ≤0.05. Anemia was also statistically and significantly higher in non vegetarian (79.22%) and lower (1-2) number of meals per day (51.52%) was also associated, p-value ≤0.05. There was no statistical association of anemia with different age groups (years), gestational age (weeks), smoking status, education, Pica, meat

consumption during pregnancy, menorrhagia, bleeding from gums p-value >0.05.

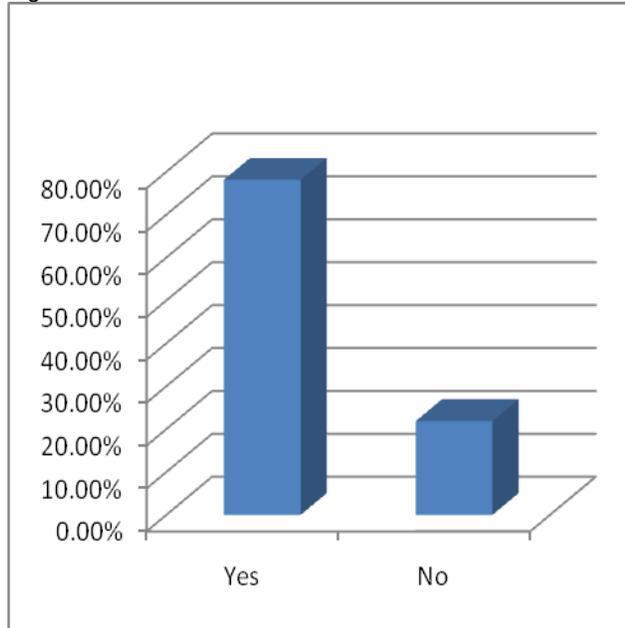
Table 1: Descriptive Statistics of age, gestational age and Hb. Level (n=460)

| | Age (years) | Hb. Level | Gestational age (weeks) |
|----------|-------------|------------|--------------------------|
| Mean±S.D | 22.59±3.17 | 9.98±1.104 | 28.88 ±7.41 |
| Range | 18.00 | 9.20 | 36 |
| Minimum | 16.00 | 4.80 | 6 |
| Maximum | 34.00 | 14.00 | 42 |

Table-2: Comparisons of Different Factors in Anemic and Non-Anemic Females

| | Anaemia | | P value |
|--|----------------|-------------|---------|
| | Yes | No | |
| Age in years | | | |
| < 18 | 2(0.55%) | 2(1.98%) | 0.351* |
| 18-30 | 553(53.19%) | 98(97.03%) | |
| > 30 | 6(1.6%) | 1(0.99%) | |
| Gestation age (weeks) | | | |
| < 37 | 316(87.53%) | 86(85.15%) | 0.528* |
| ≥ 37 | 45(12.47%) | 15(14.85%) | |
| Booking status | | | |
| Yes | 260(72.02%) | 78(77.23%) | 0.297* |
| No | 101(27.98%) | 23(22.77%) | |
| Residence | | | |
| Urban | 254(70.36%) | 81(80.20%) | 0.050* |
| Rural | 107(29.29.64%) | 20(19.80%) | |
| Working status | | | |
| Yes | 8(2.22%) | 7(6.93%) | 0.018* |
| No | 353(97.78%) | 94(93.07%) | |
| Smoking status | | | |
| Passive | 109(30.19%) | 26(25.74%) | 0.385* |
| No | 252(69.81%) | 75(74.26%) | |
| Dietary habits | | | |
| Vegetarian | 75(20.78%) | 12(11.88%) | 0.043* |
| Non vegetarian | 286(79.22%) | 89(88.12%) | |
| Usage of meat during pregnancy/week | | | |
| No | 132(36.57%) | 26(25.74%) | 0.094 |
| 1-3 times | 203(56.23%) | 64(63.37%) | |
| > 3 times | 26(7.20%) | 11(10.89%) | |
| Number of meals | | | |
| 1-2 | 186(51.52%) | 40(39.60%) | 0.034* |
| 3-4 | 175(48.48%) | 61(60.40%) | |
| Menorrhagia | | | |
| Yes | 9(2.49%) | 3(2.97%) | 0.790 |
| No | 352(97.51%) | 98(97.03%) | |
| Bleeding from gums | | | |
| Yes | 19(5.26%) | 9(8.91%) | 0.174 |
| No | 342(94.74%) | 92(91.09%) | |
| Obstetric cause | | | |
| APH | 0 | 1(0.99%) | 0.058 |
| No APH | 361(100%) | 100(99.01%) | |

Fig-1: Prevalence of Anemia



DISCUSSION

There has been small decrease (5%) in prevalence of anemia among pregnant women since 1995, MDG-5 appear relatively hard to accomplish by various developing countries¹¹. More than half of pregnant women in African & Asian countries are anemic versus 15% anemia in pregnant women in developed countries¹². Prevalence of anemia in primigravidae in this study was 78.1%, another study from Abbottabad showed mild anemia in 55.9%, moderately severe anemia in 31.1%, severe anemia in 13% primigravidae⁹. Its Prevalence in various regions of India varies between 33-100%¹³ in a Sudanese study 62.2%⁶ and 26.2% in a study from Bahrain¹⁴. In this study 74.79% had mild anemia, 23.54 % moderate anemia and 1.6% severe anemia. Yet mild form of anemia may be erratic in its itinerary throughout pregnancy consequently increasing maternal and fetal menace if it gets inferior. Maternal, perinatal and infant mortality increase 500 fold in pregnant women with severe anemia¹⁶. Factors associated with anemia measured in this study were 14 containing nutritional aspects: (no. of meals/day, meat servings/week, vegetarian/ non vegetarian, Pica); social factors: (residence area, urban/rural, education, working/ non working, smoking); medical/obstetric factors: (menorrhagia, duration of pregnancy, bleeding gums, worm infestation) Anemia has momentous relationship with adolescence^{11,17,18,19}. In this study 97.6% primigravidae belonged to age group 18-30 years. 14% were teenagers. However; No significant association was found between age and anemia.

Anemia was more common in primigravidae in some studies¹⁹. Urban residence was significantly associated with anemia in this study; Non working status, intake of 1-2 meals /day and non vegetarian status were other factors significantly associated with anemia in primigravidae in this study. While in other studies, Nutritional deficit, unhealthful intake behaviors, pica (19.8%), nonworking status, multiparty, poor education, rural residence, malaria, hook worm parasitemia were associated with anemia in different studies from developing countries^{4,5,6,19}. Meat consumption <1/week, post meal tea intake, and pica were associated with anemia in one study²⁰. Although study from Bahrain indicates poor education and close birth spacing as risk factors for anemia in spite of flour fortification and complimentary complete health care support by Government¹⁴. Other factors like pica, meat consumption, education, smoking, menorrhagia, bleeding gums, worm infestation, as has been shown in tables were not significantly associated with anemia in this study. Etiological factors also vary with ethnicity, race, and ecological place^{2,16,21}.

CONCLUSION

High prevalence of anemia in primigravidae is likely to have implications for quality of life and risk of mortality in these patients.

RECOMMENDATIONS

1. Imperative therapies like upgrading in antenatal care predominantly counseling; intake of 3 meals/day.
2. Iron supplements.
3. Flour enrichment with iron.
4. On long term basis empowerment of women and reducing gender favoritism to save this populace ill health.

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