Original Article

Iron Deficiency Anemia

Prevalence of Iron Deficiency Anemia during Pregnancy in Tertiary Care Hospital of Lahore

1. Alia Masood 2. Amna Khanum 3. Masood Akhtar

1. Senior Registrar, Gynae& Obs.,Lady Aitchison Hospital. Lahore. 2. Asstt. Prof., Gynae& Obs.,Lady Aitchison Hospital. Lahore 3. PG Student of Ph.D. in Epidemiology, UVAS, Lahore.

ABSTRACT

Objective: The objective of this study was to determine prevalence of iron deficiency anemia during pregnancy in tertiary care hospital of Lahore

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Department of Obs and Gynae, Lady Aitcheson Hospital Lahoreand was completed in 6 months.

Materials and Methods: Data was collected using random sampling from 985 females in their last trimester. All pregnant females aged 16-40 years during their 3rd trimester were taken whereas the pregnant women with known history of thalassemia and sickle cell anemia were excluded from the study. Their demographic information regarding age, gestational age and parity was taken on predesigned Proforma. Venous blood sample was obtained and sent to hospital laboratory for analysis of their hemoglobin (Hb) level. All data was collected by principle investigator.

Results: In this study the mean age of all pregnant females was 26.42 ± 4.53 years with age range of 24 years (16 - 40 years). The average Hb level during third trimester was 9.18 ± 0.98 with minimum Hb recorded as 4 and maximum Hb as 12. According to WHO classification 93.8% females were anemic and rest of 6.2% females were non-anemic but their Hb was not more than 12 mg/dL. On further classification it was found that 761 (77.3%) had moderate anemia, 157(15.9%) had mild anemia, and 6 (0.6) were severe anemic. We found insignificant negative correlation of Hb with maternal age (r= -0.009, p-value = 0.767) and found significant positive correlation with number of antenatal visits (r= 0.090 , p-value = 0.005)

Conclusion: Moderate to severe anemia was highly prevalent in our study that may have serious feto-maternal outcomes. Further studies are suggested to address the problem of anemia and its associated causal factors.

Key Words: Pregnancy, Iron Deficiency Anemia, Maternal Risk

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INTRODUCTION

Anemia is a condition in which the red blood cell count in RBC's Hemoglobin of a person's blood is less than normal; which is an iron rich protein responsible for carrying blood from lungs to rest of the body and gives the red color to blood. The WHO criterion for a woman being anemic during last trimester is when she has hemoglobin level below 11gm%. Anemia is a frequently occurred pregnancy related complication and can be classified as mild (when Hb is 10.0 – 10.9), moderate (7– 9.9) or severe (< 7 gm/dL).[1]The physiological changes typically going on during pregnancy alter the level of Hb concentration in body causing it to reduce relatively or in some cases, severely which leads to iron deficiency and Anemia.[2]

The etiology of anemia can be explained by various factors that vary geographically and racially. However, some common factors include malnutrition, menstruation and consecutive pregnancy which are accompanied by physiological changes and demands by the fetus and blood volume expansion during pregnancy. Moreover any genetic problem, history of blood loss in some previous recent event/ trauma and post-operative blood loss should also be considered.[3, 4]

Anemia has serious implications on maternal health and has been documented to significantly contribute to maternal mortality and morbidity. Also, it may cause perinatal mortality or morbidity due to complications like preterm birth and intrauterine growth retardation. [5]

The global prevalence of anemia is around 56%, while around 50-70% prevalence is reported in Southeast Asia.[6, 7] In India, the inconsistent prevalence with a wide range of around 33-89% has been observed, with acceptable hemoglobin level of as low as 10gm%.[6]

In Pakistan, the reported prevalence of Anemia during pregnancy is vaguely reported in recent years with range of 26.66% [8]- 90.5%.[9] So, we aimed to find prevalence of anemia during pregnancy at a tertiary care hospital in Lahore.

Correspondence: Dr. AmnaKhanum,
Asstt. Prof., Gynae&Obst.,LadyAitchison Hospital. Lahore
Contact No.: 0321-4976622
E-mail:amnakhanum@hotmail.com

MATERIALSAND METHODS

This Cross sectional study was conducted at department of Obs and Gyne Lady Aitcheson Hospital Lahore and study was completed in 6 months.

Sampling: Random sampling was used to collect the data

Sample size: A total of 985 females in their last trimester were taken in this study.

Sample Selection Criteria: All pregnant females aged 16-40 years during their 3rd trimester were taken

Exclusion Criteria: Pregnant women with known history of thalassemia and sickle cell anemia,

Data Collection Method: In this study a total of 985 pregnant women meeting inclusion criteria were included. The study was commenced after formal written permission, the informed consent. Their demographic information regarding age, gestational age and parity was taken on predesigned proforma. Venous blood sample was obtained and sent to hospital laboratory for analysis of their hemoglobin (Hb) level. During last trimester the anemia was defined at Hb level ≤ 10.5 mg/dL and was further classified as, ≤ 7 mg/dl severe, 7.1-9.9 was taken as moderate. All data was collected by principle investigator. All data was entered and analyzed using SPSS version 22. Qualitative data like frequency of maternal anemia was presented by bar graph along with frequency (%). Mean ± S.D, median, mode and other relevant statistics were calculated for maternal age, parity, number of antenatal visits and Hb level. Pearson correlation was used to measure strength of relationship of Hb level with maternal age and number of antenatal visits.

RESULTS

In this study the mean age of all pregnant females was 26.42 ± 4.55 years with age range of 24 years(16 -40 years). Most of the subjects (55.1%) were nulliparous while rest of the patients (44.9%) had parity 1-6.

Table No.1: Descriptive Statistics of age, parity, Antenatal visits and Hb level

	Age (years)	*Parity*	*Antenatal Visits*	*Hemoglobin level*
Mean	26.42	1.02	4.35	9.18
Median	26	0	3	9
Mode	30	0	3	9
Std. Deviation	4.55	1.42	2.98	0.98
Inter quartile range	7	2	3	1

The average antenatal visits were 4.35 ± 2.98 with minimum and maximum number of visits 1-12. The average Hb level during third trimester was 9.18 ± 0.98 with minimum Hb of 4 and maximum Hb of 12. According to WHO classification 93.8% females were anemic and rest of 6.2% females were non-anemic but their Hb was not more than 12 mg/dL. On further classification 157(15.9%) had mild anemia, 761 (77.3%) had moderate anemia and 6 (0.6%) were severe anemic. We found insignificant negative correlation of Hb with maternal age (r= -0.009, p-value = 0.767) and found significant positive correlation with number of antenatal visits (r= 0.090 , p-value = 0.005).

Table No.2: Correlation of Maternal Hb with maternal age and number of antenatal visits during pregnancy

		Age(years)	Antenatal Visits
Maternal Hb	Correlation	- 0.009	0.090
	p-value	0.767	0.005
	No. of patients	985	985

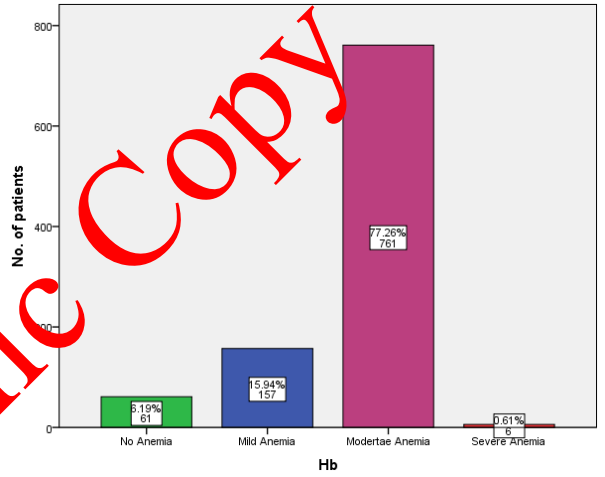

Figure No.1: Maternal status of anemia

DISCUSSION

Anemia is one of major nutritional health disorders affecting significant proportion of population not only in developing countries but also in developed countries. The risk is more alarming in developing countries where factors like poverty and illiteracy may contribute to high risk for cause of anemia. Although it effects all age group, but more prevalent in pregnant women affecting 2/3rd pregnant women [10]. The World Health Organization (WHO) estimated prevalence of anaemia is approximately23% in industrialized countries, with the prevalence in non-industrialized countries being at least twice as high.[11] Prevalence of anaemia among pregnant women in developing countries average 56 %with a range of 35 % to 100 % among various region of the world.[12] Various women start pregnancy with some degree of iron deficiency anemia which is further aggravated with physiological changes of haemodilution of pregnancy, beginning in the first trimester up to 32 weeks of pregnancy and so on. WHO standard of diagnosing anaemia in pregnancy is a hemoglobin level of11gm/dl or less. The commonest

cause being iron deficiency but folic acid deficiency, B12deficiency and beta thalassemia trait besides are other common contributing factors. There is still a very high prevalence of anemia, especially during third trimester which significantly affects the maternal and fetal outcome during pregnancy.[13]

In this study we found that The average Hb level during third trimester was 9.18 ± 0.98 with minimum Hb = 4 and maximum Hb was 12. According to WHO classification 93.8% females were anemic and rest of 6.2% females were non-anemic but their Hb was not more than 12 mg/dL. On further classification 157(15.9%) had mild anemia, 761(77.3% had moderate anemia) and 6(0.6) were severe anemic. We found insignificant negative correlation of Hb with maternal age (r= -0.009, p-value = 0.767) and found significant positive correlation with number of antenatal visits (r= 0.090 , p-value = 0.005)

Anaemia in pregnancy is associated with adverse consequences both for the mother and the fetus. Studies have shown that the adverse consequences of maternal anaemia may affect not only the neonate and infant but also increase the risk of non communicable diseases when the child grows into an adult and the risk of low birth weight in the next generation. Technology for detection of anemia and its effective treatments are available and affordable and it is possible to effectively implement these even in primary health care settings.[14, 15]

CONCLUSION

Moderate to severe anemia was highly prevalent in our study that may have serious feteo-maternal outcomes. Further studies are suggested to address the problem of anemia and its associated causal factors.

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

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