Prevalence and consequences of anemia in pregnancy survey based study in Karachi

Safila Naveed*, Asra Hameed, Neelam Sharif, Ammarah Urooj, Ramsha Mehak and Sadaf Ghafoor

Faculty of Pharmacy, Jinnah University for Women, Karachi –74600, Pakistan

ABSTRACT

Anemia is very common in pregnancy because during pregnancy, there was the fluid portion of a pregnant lady's blood (the plasma) increases faster than the number of RBCs which dilutes the blood and lead to anemia so can be treated easily with the help of medications. Our studies aim to find out the Prevalence & Consequences of Anemia in Pregnancy in Karachi. Data was collected from different government and private sector hospitals, clinics, health cares and maternity homes of Karachi city. Random and crossed sectional methods were used to collect data from pregnant women belonging to different age groups during different trimesters of pregnancy. Severe anemia is very common in first trimester of pregnancy, mild to moderate anemia during pregnancy mostly found second trimester of pregnancy and as the pregnant lady reaches to the last trimester of pregnancy, her Hb level reaches up to normal levels with the help of medications and they become non-anemic.

Key words: Anemia, Pregnancy, Hb level, Trimesters

INTRODUCTION

Blood is made up of red blood cells, white blood cells, platelets (PLATE-lets), and plasma (the fluid portion of blood). Red blood cells are disc-shaped and look like doughnuts without holes. They carry O2 oxygen and remove CO_2 carbon dioxide (a waste product) from body. These cells are prepared in bone marrow—a sponge-like tissue inside the bones. White blood cells and platelets (PLATE-lets) also are made in bone marrow. The function of white blood cells is fighting infection and the platelets stick together to seal small cuts or breaks on the blood vessel walls and stop bleeding. In different types of anemia low numbers of all three types of blood cells. Anemia is a condition in which blood has a lower than normal number of red blood cells. Anemia has three main causes: may be due to blood loss, production of red blood cell is less or may be the high rates of red blood cell destruction. This reason of these causes might be the result of particular diseases, conditions or any other factors. Pregnancy is the fertilization and development of one or more offspring/ embryo or fetus. Pregnancy lasts about 40 weeks, counting from the first day of last normal period. The weeks are divided into three trimesters and anemia can occur during pregnancy due to decrease levels of iron and folic acid and changes in the blood. During the first 6 months of pregnancy, the fluid portion of a woman's blood (the plasma) increases faster than the number of red blood cells the reason is that no enough RBCs red blood cells for the foetus therefor body starts to produce more RBCs red blood cells and plasma. It has been estimated that the blood volume increases approximately fifty 50 per cent during the pregnancy, although the plasma amount is disproportionately greater and this condition causes a dilution of the blood and making the haemoglobin concentration fall. This dilution of the blood can lead to anemia. Anemia is a major health problem of developing countries. Approximately half of the pregnant women are anemic in Pakistan. Anemia is a reduction in either the percentage of red blood cells (hematocrit)/ reduction in the conc. of Hb hemoglobin in venous blood. [1] The iron deficiency is more likely to occur at certain times in life such as adolescence, pregnancy and breastfeeding. Women of childbearing age are therefore, at greatest risk of developing anaemia because they have the greatest need for iron. [2] Our research group has done this type of survey for prevalence and for awareness of different disease which are useful for health care professionals.[3-13]

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*Corresponding Author Address: Safila Naveed, Faculty of Pharmacy, Jinnah University for Women, Karachi –74600, Pakistan; E-mail: safila117@yahoo.com

METHODOLOGY

For the collection of data, we visited different public and private sector hospitals, tertiary health care systems, clinics and maternity homes of the Karachi city from January 2014 to April 2014. Random and crossed sectional methods were used to collect data from pregnant women belonging to different age groups during different trimesters of pregnancy. Data of 50 pregnant ladies was collected for analysis (n=50). We studied their files and records to check out their basic information (e.g. Name, age, no. of pregnancy, trimester), their Hb levels as well as the treatment if they are anemic. We collected all data of the patients from there and gathered all the data for analysis of the Prevalence & Consequences of Anemia in Pregnancy in Karachi. We have statistically analyzed our result and plotted graphs of different types of anemia in different age groups as well as in different trimesters of pregnancy to conclude the result.

RESULT AND DISCUSSION

Anemia in pregnancy was found to be very common we have categorized anemia into 4 groups severe anemic, moderate anemic, mild anemic and non anemic table 1. According to our survey, in different hospitals, clinics and maternity homes, severe anemia was found to be as 12% during pregnancy in different trimesters. In 26% pregnancy cases the moderate anemia was reported in our survey, whereas mild anemia during pregnancy was found in 40% cases. 22% pregnancy cases were found to be non-anemic in different trimesters of pregnancy in different age groups. According to our survey the anemia in pregnancy is present in different age groups in different ways. Severe anemia during pregnancy has been reported in the age of early maturity, which lies in the age group of 17-20years.

Whereas severe anemia during pregnancy was also found in age groups 21-32years, but much less in these age groups. Results are given in table 1-5 and fig 1,2. There was no severe anemia found in the groups of elderly age lies in 33-40years.Moderate anemia during pregnancy was found more in the middle age group that lies in the age of 25-28years whereas it is less in the early age group of pregnancy lies (17-20years) when compared with the middle age group. Moderate anemia is much less in the age group of 21-24years whereas it was found much less in the age groups lies in 29-40years.Mild anemia is not a severe case and can be managed with the medications (i.e. iron, folic acid, vitamin B12 & multivitamins) was found less in the age group of 17-20years, as well as in the elderly groups ranging from 29 to 40 years. It was found more in the age group of 21-24years whereas in the age groups of 25-28years it found mostly during pregnancy.

According to our survey mild anemia exist during different trimesters of pregnancy in all age groups. Normal level of hemoglobin during pregnancy (non-anemic) was found mostly in the age group of 21-24years. Less in the age group of 25-28years, and very less in the age of 29-40years because during pregnancy, there was the fluid portion of a pregnant lady's blood (the plasma) increases faster than the number of RBCs which dilutes the blood and lead to anemia. In the age group of 17-20 years, severe anemia and moderate anemia is very common. Mild anemia and normal Hb level was found rare in this age group. In the age group of 21-24years, mild anemia is very common; some cases are non-anemic in this age group. Moderate anemia is less in this age group whereas; severe anemia during pregnancy is rare in this age group. In the age group of 25-28years mild anemia is most common and moderate anemia during pregnancy is also common is this age group. Some patients belonging to this group are non-anemic whereas severe anemia is very rare in this age group. In the age group of 29-32 years, all types of anemia are present during pregnancy according to our survey. Whereas in the age group of 33-36years there was no patient found as severe anemic during pregnancy. In the age group of 37-40years, only two pregnancy cases were found in our survey, these are mild and moderate anemic patients.

In the 1st trimester of pregnancy, 3cases of severe anemic during pregnancy, 2cases of moderately anemic during pregnancy, 4cases of mild anemia during pregnancy and 2cases of non-anemic during pregnancy was found in our survey. In the 2nd trimester of pregnancy, 2cases of severe anemia during pregnancy, 7cases of moderate anemia during pregnancy and 9cases of mild anemia during pregnancy was found in our survey. In the last trimester (i.e. 3rd trimester of pregnancy) only one patient was found as severe anemic in our survey, whereas 4cases of moderate anemia during pregnancy, 7cases of mild anemia during pregnancy and 9cases of non-anemic during last trimester of pregnancy was found in our survey report.

CONCLUSION

In conclusion, according to our survey severe anemia is common in first trimester during pregnancy and less in 2nd trimester during pregnancy, and very rare in last trimester during pregnancy. Mild to moderate anemia is common in 2nd trimester during pregnancy whereas non-anemic

during pregnancy is mostly in the last trimester of pregnancy that is due to the successful treatment of anemia in pregnancy with the medications like iron, folic acid, vitamin B12 and other multivitamins.

Table 1: Categories of anaemia

Categories of anaemia	
Non-anaemic	11.0-12.9 g/dL
Mild-anaemic	9.0-10.9 g/dL
Moderately- anaemic	7.0-8.9 g/dL
Severe-anaemic	5.0-6.9g/dL

Table 2:Anaemia in different age group

		Hb Level				Total
		Severe-anaemic	Moderately-anaemic	Mild-anaemic	Non-anaemic	
Age Groups	17-20years	3	3	1	1	8
	21-24years	1	2	6	5	14
	25-28years	1	5	10	3	19
	29-32years	1	1	1	1	4
	33-36tears	0	1	1	1	3
	37-40years	0	1	1	0	2
Total		6	13	20	11	50

Table 3:Anaemia in different Trimester

		Hb Level				Total
		Severe-anaemic	Moderately-anaemic	Mild-anaemic	Non-anaemic	
Trimester	1st trimester	3	2	4	2	11
	2nd trimester	2	7	9	0	18
	3rd trimester	1	4	7	9	21
Total		6	13	20	11	50

Table 4: Chi-Square Tests in different age group

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.242[a]	15	.584
Likelihood Ratio	13.211	15	.586
Linear-by-Linear Association	.540	1	.462
N of Valid Cases	50		

Table 5: Chi-Square Tests for Anaemia in different Trimester

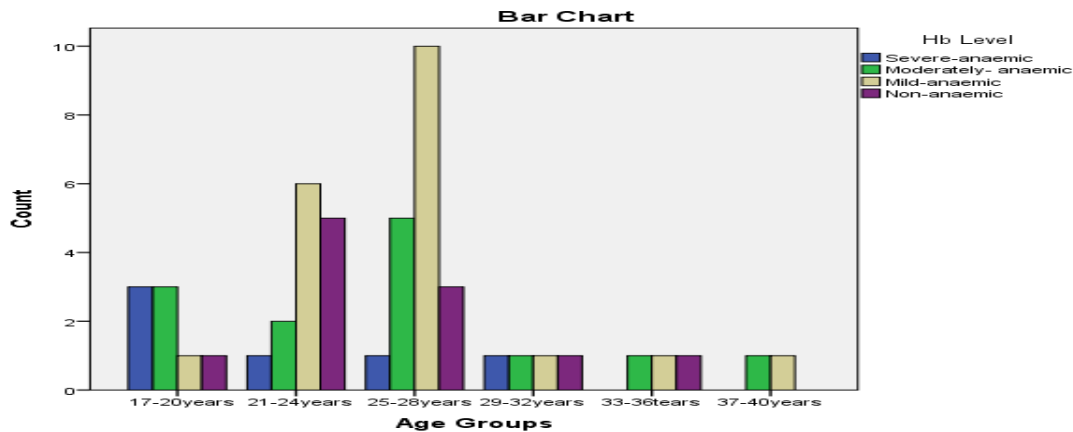|	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.771[a]	6	.032
Likelihood Ratio	16.428	6	.012
Linear-by-Linear Association	5.159	1	.023
N of Valid Cases	50		

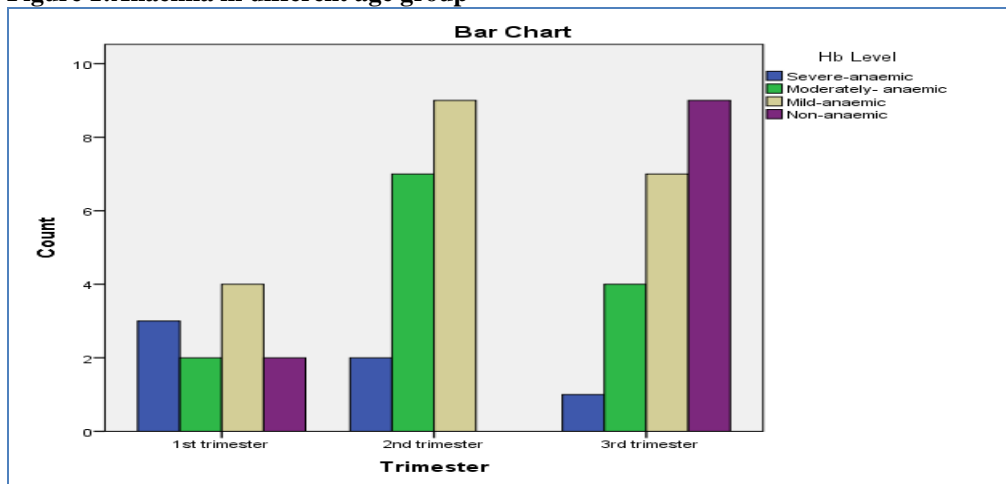**Figure 1:Anaemia in different age group**

Figure 2: Anaemia in different trimester

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