Prevalence of Anemia in Obstetrical Population

R SOHAIL S ZAINAB F ZAMAN
Department of Obstetrics & Gynecology, SIMS, Postgraduate Medical Institute, Lahore
Correspondence to Dr. Rubina Suhail, Associate Professor **E-mail:** rubina95@hotmail.com

Objectives: To determine the prevalence of anemia in pregnant women attending antenatal clinic and to asses the cause of anemia. **Study Design**: Temporal sampling technique. **Place and Duration of Study:** Antenatal clinic Unit II, Department of Obstetrics and Gynaecology of Services hospital, Lahore from 01.03.2001 to 01.03.2002. **Subjects and Methods:** Hemoglobin estimation was done in all subjects. Blood indices, peripheral smear, malarial parasite and stool examination were carried out in women with values less than 11gm/dl. Serum electrophoresis was done if the hemoglobin was less than 7gm/dl. **Results:** It was found that 66% of the pregnant women were anemic. Anemia was more common in women with lesser education, low socioeconomic group and increasing parity. Iron deficiency anemia was found in 72.7% of anemic women. **Conclusion:** Effective steps should be taken to diagnose anemia early in pregnancy.
Key Words: Anemia, Pregnancy

Anemia in pregnancy continues to be a major public health problem in the world. Based on 1988 data, the World Health Organization estimated that up to 56% of all women living in developing countries are anemic (Hb < 11g/dl) compared with 18% in industrialized countries[1].

According to World Health Organization definition of anemia in pregnancy is a hemoglobin less than 11 g/dl and severe anemia hemoglobin less than 7 g/dl[2]. There are marked physiological changes in the composition of blood in healthy pregnancy, the increase in total blood volume[3] and haemostatic change[4].

Because of the normal physiologic changes in pregnancy affecting hematocrit, and red blood cells indices, diagnosing true anemia, and finding its cause is challenging. Because of increased nutritional requirements of mother and fetus, the most common anemia is iron deficiency followed by folate deficiency megaloblastic anemia. These anemia's are more common in women who have inadequate diets and who are not receiving prenatal iron and folate supplements. Anemia directly and indirectly contributes to maternal morbidity and death. Anemia is associated with perinatal morbidity and mortality by increasing the likelihood of intrauterine growth retardation and preterm delivery[5, 6].

Subjects and methods

The study was carried out in the antenatal clinic of Department of Obstetrics and Gynecology, Unit-II PGMI, Services Hospital Lahore on one thousand pregnant women from 1-3-2001 to 1-3-2002. Temporal sampling method was used.

Inclusion Criteria: All pregnant women coming for first visit at the antenatal clinic.

Exclusion Criteria: Patients with thalasemia, myelofibrosis and early leukemia were excluded from study.

Methodology:
Hemoglobin estimation was done in all subjects. Blood indices, peripheral smear; malarial parasite and stool examination were carried out in women with values less than 11gm/dl. Serum electrophoresis was done if the hemoglobin was less than 7gm/dl. Patients who had hemoglobin of less than 6g/dl and those who failed to respond to iron therapy were referred to a hematologist with suggestion of bone marrow biopsy.

Data was analyzed on SPSS and Chi Square test was applied.

Results

In the study 66% women were found to be anaemic while 34% had hemoglobin equal to or greater than 11gm/dl. Almost half of the anemic population had hemoglobin less than 9gm/dl (Table 1). Severe anemia was present in only 13.5% (Table 2).

Iron deficiency (72.7%) was the commonest type of anemia, while megaloblastic anemia (5.6%) was the least common. Mixed type and folic acid (folate) deficiency anemias (14.5% & 7.3% respectively) formed an intermediate group (Table 3).

In the study prevalence of anemia increased with increasing number of pregnancies (Table 4). Appearance of anemia varied according to the duration of gestation, it was found to more common in women presenting in second trimester of pregnancy (47.27%) while it was less common in those presenting in third trimester (28.33%). It was possibly due to early commencement of iron supplement in booked patients (Table 5).

By applying Chi Square prevalence of anemia was calculated according to the socioeconomic status. It was seen that 85% of the anemic population were earning less than Rs 5000 per month (Table 6).

Table 1 Distribution of anaemic pregnant population according to hemoglobin

Hemoglobin g/dl	Hemoglobin g/dl	%age
< 5.0	7	1.1
5-6.9	82	12.4
7-8.9	249	37.7
9-10.9	322	48.8
Total	660	100

Table 2 Distribution of anaemic population according to Severity of anemia

Hemoglobin g/dl		n=	%age
Mild to moderate	7.1-10.9	571	86.52
Severe Anemia	< 7	89	13.48
Total		660	100

Table 3 Type of anemia in obstetrical population

Type of Anemia	N=	%age
Iron deficiency	480	72.7
Folic acid	48	7.3
Mixed type	95	14.4
Megaloblastic	37	5.6
Total	660	100

Type of anemia in obstetrical population
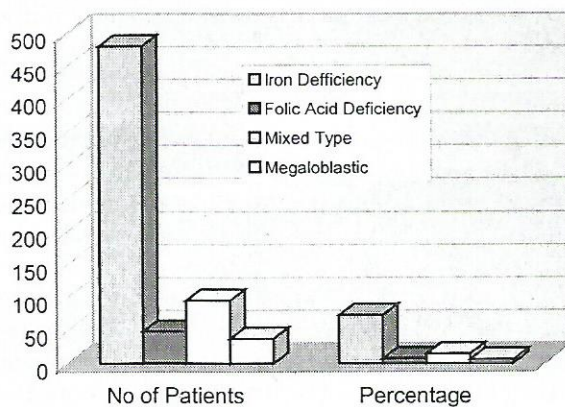
Table 4: Prevalence of anemia according to gravidity

Gravidity	No. of cases in study	No. of Anemic Population	%age
PG	294	179	27.12
G2-4	323	190	28.79
G5 or >	382	291	44.09
Total	1000	660	100

Chi Square: $X^2 = 28.41$, df = 2, P < 0.001

Table 5 Prevalence of anemia according to duration of pregnancy

Duration of Pregnancy	No. of Cases in Study	Anaemic Population	%age
1st trimester	299	161	24.40
2nd	481	312	47.27
3rd trimester	220	187	28.33

Chi Square: $X^2 = 55.16$, df = 2, P < 0.001

Table 6 Prevalence of anemia according to aocioeconomic atatus

Socioeconomic Status	No. of Cases	Anaemic Population	%age
< 3000	488	389	58.94
< 3000-5000	235	174	26.36
< 5000-10000	194	86	13.03
> 10000	83	11	1.67
Total	1000	660	100

Chi Square: $X^2 = 191.63$, df = 2, P < 0.001

Discussion

The overall prevalence of anemia in pregnancy was found to be 66%, out of which 86.51% was mild to moderate anemia and 13.48% severe anemia. In comparison two studies from Tanzania reported overall prevalence rates of 74.5% and 86% for anemia and 7.0% for severe anemia in an urban population[7].

A study from Khyber Teaching Hospital and Cantonment General Hospital, Peshawar reported that 52.1% women were anaemic. In this study 72.72% had iron deficiency anemia, 7.3% folic acid deficiency and 14.95% mixed type of anemia. Megaloblastic anemia (5.6%) was least common. Karim in 1994 showed 32.7% incidence of anemia in parturient women of Karachi[8]. Iron deficiency predominated and was seen amongst 63.5% of anemic population. Suharno (1992) gave an incidence of anemia of 49.4% in normal pregnant women in West Jawa out of which 43.5% had iron deficiency anemia This study revealed greater incidence of anemia in women between 25-45 years[9]. This was not comparable with the results of Onedeko who in 1996 revealed high risk of anemia in teenage pregnancy giving incidence of 15.1%[10].

In this study there was greater percentage of anemia in low socioeconomic class. A monthly income less than Rs.3000/- leading to poor nutritional status. Siryh in 1998 also gave similar conclusion that multiparous women of lower socioeconomic set with late booking have the highest risk of anemia[11]. The percentage of anemia was high in grand multipara and patients who had their first antenatal visit in the third trimester.

Mahfouz (1994) found that prevalence of anemia was affected by age (37.3%) were less than 20-year-old, parity (34.9%) had 7 and more deliveries, inter pregnancy spacing (35.2%) had birth spacing less than 1 year, and education (35.1%) were illiterates[12].

Conclusion

Anemia is highly prevalent in obstetric population. Most of the women come for first antenatal visit in third trimester.

Recommendations

Considering the low prevalence of women who have

antenatal; educational programs for public awareness regarding anemia should be launched. Every woman should be screened for anemia on her first antenatal visit. All pregnant women should receive iron supplement, ferrous sulphate 200mg with 0.25mg folic acid for prophylaxis of anemia

References

1. World Health Organization. The prevalence of anaemia in women; a tabulation of available information. 2nd ed. Geneva; WHO, 1992.
2. World Health Organization. Prevention and management of severe anaemia in pregnancy. WHO, 1992.
3. Hytten F. Blood volume changes in normal pregnancy. In Letsby E A. h aematological d isorders i n p regnant. L ondon; W.B. Saunders, 1985: pp 601 – 12.
4. Letsby EA. The haematological system. In Hytten FE. Chamberlain GVP. Clinical physiology in obstetrics, 2nd edition, Oxford: Blackwell Scientific Publication, 1991: pp 39- 82.
5. Germ SM, Keating MT, Falbner F. Haematological status and pregnancy outcome. Am J Nutr 1981; 34: 115 – 7.
6. Baber SJ, DeMaeyer EM. Nutritional anaemia, its understanding and control with special reference to work of WHO. Am J Nutr.
7. Karim SA, Khurshid M Memon AM, Jaffery SM. Anaemia in pregnancy, its cause in the under privileged class of Karachi. J Pak Med Assoc 1994; 44: 90 – 2.
8. Suharno D, West CE, Muhila et al. Cross-sectional study on the iron and vitamin status of pregnant women in West Java, Indonesia. Am J Clin Natr 1992; 56: 988 – 93
9. Bergsto P, Seha AM, Ole-Kingori N. Haemoglobin concentration in pregnant women, experience from Moshi Tanzania. Acta Obstet Gynaecol Scand 1996; 75: 241 – 44.
10. Ondeko MO, Avokey F, Lawoyin TO. Observation stillbirth, birth overweight and maternal hemoglobin in teen-age pregnancy in Ibadan, Nigeria Afr J Med Sci 1998; 25: 81 - 6
11. Sing H, Fong YF, Avulkumaran S. Anaemia in pregnancy: a cross sectional study in Singapore. Eur J Clin Nutr 1998; 52: 65 – 70.
12. Mahfouz AA. El-Said MM, Alahija W. Anaemia among pregnant women in Asian region and Saudi Arabia: an epidemiologic study. Southeast Asian J Trop Med and Public Health 1994; 25: 84 – 87.