Prevalence of Anemia in Antenatal Pregnant Women Attending OPD of Skims Soura

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Abstract
Anemia is defined as decrease in oxygen carrying capacity of hemoglobin. According to WHO anemia is defined as Hb <11g/dl Plasma volume expansion occurs in pregnancy by 50% but RBC Volume increases only by 30% as a result there is fall of Hb by 2g/dl in pregnancy. Iron requirement in 2nd trimester of pregnancy is 4-6mg/dl and in 3rd trimester it is 6-8 mg/dl which if not supplemented leads to iron deficiency anemia.

Methodology: this study included 600 patients from which venous blood sample was taken in EDTA vail and later all investigation were carried; CBC, PBF, iron studies, v12 levels, red cell folate levels. Anemia was classified Morphologically, on the basis of severity.

Results: Prevalence of anemia in our study was 30%. In our study iron deficiency anemia was most common, it was more in age group of 20-30years, more in multiparas, and in rural population, and more in 3rd trimester and was of moderate type anemia.

Conclusion: Owning to high prevalence of anemia in our study so we need diagnose anemia early, treat it at earliest stage. Besides this we have reduce etiological factors of anemia like deworming of patients, spacing of pregnancies, proper antenatal check ups, and adopting healthy eating practices.

Introduction
Anemia is defined as decrease in oxygen carrying capacity of hemoglobin. According to WHO Anemia is defined as hemoglobin less than 11g/dl in pregnancy. According to centre for disease Control (CDC) hemoglobin not be allowed to fall below 10.5g/dl in second trimester of pregnancy taking into account the physiological changes of pregnancy(1)

According to figures India belongs to high prevelance area >40%(2). Iron deficiency anemia starts in childhood, worsens in adolescence and gets aggrated in pregnancy. Pregnancy causes a state of plethora. Plasma volume expands by 50% but R. B. C volume increases by 30% resulting a state of hemodilution by 15% and decrease in hemoglobin by 2 g/dl(3)

Thus peripheral blood film shows normocytic Normochromic anemia and it is known as physiological anemia of pregnancy. This decrease in blood viscosity is beneficial for two reasons; firstly it facilates increased Blood flow through
Iron demand in 2nd trimester of pregnancy is 4-6 mg/day and 6-8 mg/dl in third trimester. Because of this increased demand of iron, absorption is increased from 7.2% in 1st trimester to 66% in 3rd trimester. (4)

For formation of R. B. C not only iron is required but also folic acid, vitamin B12, trace of zinc and copper is required.

Iron deficiency anemia when occurs in pregnancy is associated with low birth weight and preterm delivery (5, 6, 7). Serum ferritin is a sensitive marker for iron deficiency anemia and it's level falls in case of iron deficiency anemia in pregnancy.

The main objective of this study was to study the prevalence of iron deficiency anemia in antenatal Population of SKIMS soura.

Methodology
It was a hospital based study carried in department of Gynae/obstetrics from year 2017-2018 in maternity hospital of skims soura. A total of 600 cases were included in this study. Informed consent was taken from all patients. Permission was taken from Ethical committee. Thorough history was taken from all antenatal cases including Age, gravida, para, occupation, residence, dietary history, personal History, family history, history of previous Mennorrhgia, bleeding P/R, passage of worms, history of malabsorption, bleeding diathesis. General examination was done pallor, icterus, cyanosis, kilonychia, cheilosis, glossitis, heart murmurs, ankle oedema, hypotension. The basic work up of consisted of obtaining a venous sample in EDTA vail from all 600 patients irrespective of gestational age, and samples were send to department of pathology for determination of;

- Complete blood count
- Peripheral blood film
- Reticulocyte count.

Peripheral blood film (PBF) is most important tool in diagnosis type of anemia. PBF staining was done by Leishmann stain, morphology of RBC, WBC, platelet was studied. Serum vitamin B12 levels were done as well as red cell Folate level. Hemoglobin less than 11g/dl was taken as anemia. Morphologically anemia was Classified as
  1. Normocytic normochromic
  2. Microcytic hypochromic
  3. Macrocytic
  4. Dimorphic

Depending on Severity Anemia was Classified as
- Mild Anemia: Hemoglobin 8-10.9g/dl
- Moderate Anemia: Hemoglobin 5-7.9g/dl
- Severe Anemia: Hemoglobin less than 5g/dl

Inclusion Criteria
All pregnant women from 20-40 years of age.

Exclusion Criteria
- Pregnant Women >40 years
- Pregnant women with h/o antepartum hemorrhage
- Pregnant women with bleeding diathesis
- Pregnant women with chronic medical diseases.

Results
- Total no. of patients in our study = 600
- No. of patients with anemia = 300
- Prevalence of anemia= 30% in our study

| Age Group | No. of Patients | Percentage |
|-----------|----------------|------------|
| 18-20 YR  | 90             | 30%        |
| 20-30 YR  | 180            | 60%        |
| 30-40 YR  | 30             | 10%        |

Thus anemia was most common in age group of 20-30 yr
Distribution of Anemia According to Parity

| Parity    | No. of Patients | Percentage |
|-----------|-----------------|------------|
| PRIMI     | 30              | 10%        |
| Multi     | 60              | 20%        |
| Grand multi | 210          | 70%        |

Thus anemia was more common in grand multi

Distribution of Anemia according to Residence

| Residence | No. of Patients | Percentage |
|-----------|-----------------|------------|
| Rural     | 180             | 60%        |
| Urban     | 120             | 40%        |

Thus anemia was more common in rural areas than urban

Distribution of Anemia According to Gestational Age

| Gestational age | No. of patients | percentage |
|-----------------|-----------------|------------|
| IST TRIMESTER   | 60              | 20%        |
| 2nd TRIMESTER   | 60              | 20%        |
| 3rd TRIMESTER   | 180             | 60%        |

Thus anemia was more seen in 3rd trimester in our study.

Distribution of Patients According to Severity of Anemia

| Type of Anemia | No. of Patients | Percentage |
|----------------|-----------------|------------|
| Mild anemia    | 90              | 30%        |
| Moderate anemia| 180             | 60%        |
| Severe anemia  | 30              | 10%        |

Majority of patients in our study were having moderate anemia.

Distribution of Patients according to type of Anemia

| Type of Anemia                | No. of Patients | Percentage |
|-------------------------------|-----------------|------------|
| Normocytic normochromic       | 30              | 10%        |
| Microcytic hypochromic        | 150             | 50%        |
| Macrocytic                    | 30              | 10%        |
| Dimorphic                     | 90              | 30%        |

Most common type of anemia in our study was microcytic hypochromic.

Discussion

Prevalence of anemia in our study was 30% while as prevelance of anemia in Ghanaian population\(^8\) was 54%. According to WHO India belongs to high Prevelance area. In our study most common type of anemia was moderate anemia (60%). In study by Rajamouli et al\(^9\) mild anemia was seen in 28% Moderate anemia was seen 36.8% and severe anemia in 6.9% of cases. Mangla et al in his study reported mild anemia in 41.76% of cases, moderate anemia in 37.05% and severe anemia in 15.88% and very severe anemia in 3.29% of cases\(^10\). The relative risk of maternal mortality associated with moderate anemia (Hb 4-8) is 1.35 and for severe anemia (Hb <4.7) is 3.51\(^11\)

In our study the most age group was 20-30 years (60%) followed by 18-20 yr(30%)
In Bereka et al\textsuperscript{(12)} mean age was 22.9 years and in Mangla \textit{et al}\textsuperscript{(10)} mean age group was 26.17 years. In our study if we go towards association of anemia towards gestational age we can see there is high prevalence of anemia in 3rd trimester, compared to 1st and 2nd trimester. Similar association of anemia with gestational age is shown by studies\textsuperscript{(13,14,15)}, this is explained on the basis of the fact that plasma volume expansion reaches its maximum at 32-34 weeks due to hemodilution\textsuperscript{(16,17)}.

In our study prevalence of anemia was more common in rural areas (60%) than Urban areas(40%) Most common type of anemia in our study was microcytic hypochromic (50%) followed by dimorphic (30%), macrocytic (10%) and normocytic normochromic (10%)

**Conclusion**

Since the prevalence of anemia in our study is high 30% so need of hour is early diagnosis of anemia, typing of anemia by appropriate investigations and treatment according to stage of gestation. Besides this we have to educate people regarding dietary habits, importance of proper antenatal check up's, avoiding rapidly occurring Pregnancies, spacing of atleast 2 years., besides this we should go for deworming of anemic patients early in pregnancy.

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