

Original article:

Assessment of severity & types of anemia during pregnancy in rural population in western Maharashtra.

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Abstract:

Background: Present study was designed to assess severity & type of anemia in rural area depending on hematological factors in Karad (Maharashtra).

Methodology: 150 pregnant women visiting at obstetric gynecology OPD in Krishna Institute of Medical Sciences, Karad were analyzed by recording hematological data as total Hemoglobin, RBC Count, PCV, MCV, MCH & MCHC were calculated. All the pregnant women were taking Iron-Folic Acid supplementation throughout pregnancy (100 mg iron/500 µg folate once a day)

Result: Out of 150 pregnant women studied. 85 (56.66%) cases were having normal Hemoglobin (11 & > 11 gm%) & observed percentage of anemia was 43.4 with more prevalence of moderate anemia in 2nd & 3rd trimester. According to blood indices & peripheral smear analysis predominantly microcytic hypochromic (55.4%) anemia was observed.

Keywords: anaemia, pregnancy

Introduction:

Anemia is frequently observed nutritional disease recognized by abnormal screening laboratory tests where hemoglobin concentration < 11 gm% & hematocrit < 33% are diagnostic values in pregnancy. Classification of anemia according to ICMR is

Mild anemia–Hemoglobin concentration 10–10.9gm%

Moderate anemia–Hemoglobin concentration 7–9.9gm%

Severe anemia– Hemoglobin concentration < 7 gm%

Prevalence of anemia in pregnancy shows great variations in different parts of the world. Crude

estimation is that 500 million women between 15 to 49 years of age world wide are anemic. According to WHO estimates up to 56% of all women living in developing countries are anemic. In India the prevalence of anemia has been reported to be in the range of 33% to 89% & more than 60% among adolescent girls with wide variations indifferent regions of the country. In India about 4 – 16% of maternal death is due to anemia. WHO 1992 reported – maternal mortality range from 27/1,00,000 live births in India

Several types of anemia developed during pregnancy are (1, 3).

A) Physiological anemia:- shows normocytic normochromic dilution picture .

B) Nutritional anemia :-

Iron deficiency anemia:- Due to deficient intake of iron rich diet, less absorption and deficient iron store from adolescent to post partum stage due to multiple pregnancies & increased demand of iron.

Dietary sources of iron :- Egg yolk, oyster, dry beans, dry fruits, wheat germs & yeast.

Folate & vitamin B12 deficiency anemia : Folate is the water soluble vitamin which is used to synthesize & repair DNA . It is nutritional deficiency of folate. Peripheral smear shows macrocytic hypochromic picture.

C) Protein deficiency anemia : Caused due to malnutrition & less dietary protein intake.

D) Thalassemia & E) Sickle cell anemia:- Regional anemia rarely observed during pregnancy caused due to genetic disorder.

F) Aplastic anemia : Hypoproliferative anemia caused due to marrow hypoplasia.

To start with the pregnant women with anemia may not have any symptom as the body system get adjusted to reduced hemoglobin mass. However she may represent with vague complain of ill health, fatigue loss of appetite, undigestion , dysapnea (Breathlessness) palpitation, black out or fainting, less work capacity & tachycardia etc.

Clinical examination may reveal pallor, pale nails, pale tongue sleepiness, depression etc. In severe cases there may be edema.

Adverse effects on mother : Increased risk of maternal morbidity, mortality & preterm delivery. Prevalence is more due to various nutritional factors & obstetric disorders like adolescent pregnancy with multiple abortions & blood loss during delivery.

Adverse effects on neonate & fetus : In India increased incidence of premature & low birth weight babies is prevalent. Increased morbidity & mortality with physical growth impairment & neural tube defect.

Prophylaxis: All pregnant women in developing countries should take iron rich diet. Routine iron folic acid supplementation is given from 1st trimester up to the 6 months of delivery. WHO / UNICEF recommended that all pregnant women in developing countries should receive routine supplementation of 60 – 100 mg. of elemental iron & 400-500 microgram folic acid during pregnancy. In severe anemic women routine dose of 100 mg. should given twice a day.

Regular ANC visits , awareness & personal hygiene should be maintained.

Materials & Methods

Collection of Data – A descriptive case study was conducted among 150 pregnant women in three trimesters visiting at Ob. Gynecology O.P.D. in Krishna Hospital of Medical Sciences, Karad.

2-3 ml. of Venous blood was collected by taking aseptic precaution using EDTA or citrate

(anticoagulant) containing bulb.

Hemoglobin, RBC count PCV & blood indices like MCV, MCH & MCHC were analyzed. .

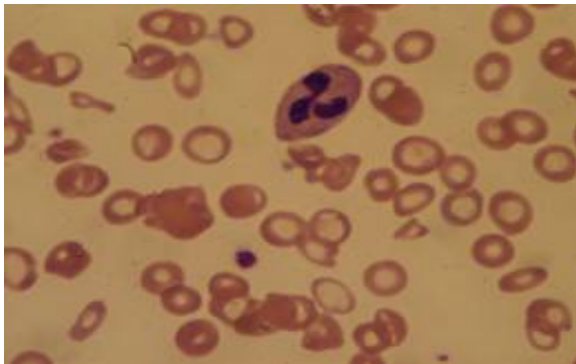
Analysis was carried out using fully automated analyzer.

As – 1. Lab life Noble 3 (DIRGNOOR) automated haematology analyzer.

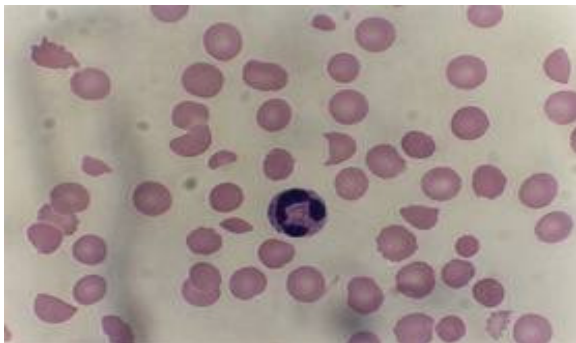
2. Lab life H3d (DIRGNOOR) premier automated hematology analyzer

The women categorized as anemic if the Hb< 11 gm%. The normal ranges for MCV is 75 – 94 cubic micron. MCH is 27 to 32 picogram & MCHC 35% cut off level used to indicate the type of anemia & severity of anemia of specifically selected pregnant women.

Peripheral smear showing iron deficiency anemia



Peripheral smear showing normocytic normochromic picture

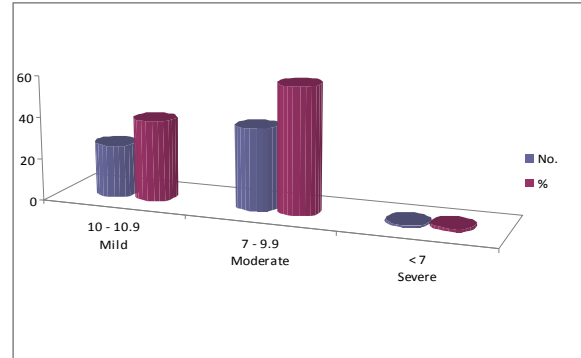


Observation & Result :Histogram No. 1

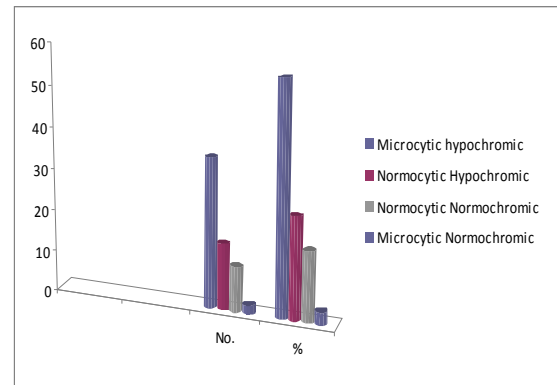
Severity of anemia depending on hemoglobin conc.:

Observed prevalence of anaemia was 43.4%

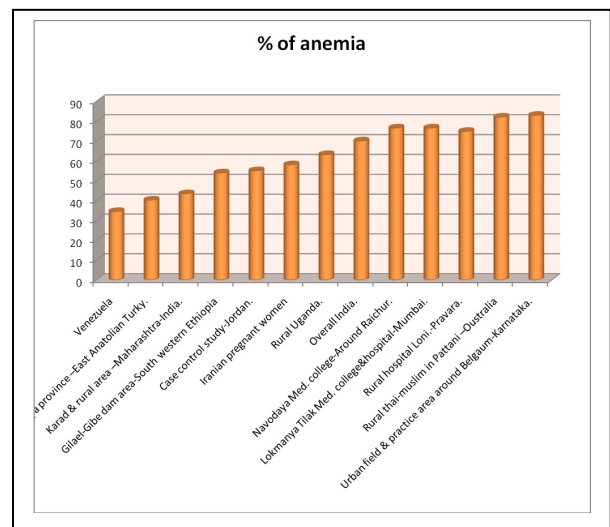
Type of anemia depending on MCV,MCH and MCHC:-



Predominantly observed type of anaemia was microcytic hypochromic (55.4%)



Comparison in prevalence of anemia in various regions of India & Other countries.



Discussion:

In this pilot study we tried to estimate the overall anemia in the pregnant women visiting at Ob. Gynecology OPD. of Krishna hospital from Karad & rural area around it by reviewing the findings of available studies..The overall anemia observed among pregnant women in the present study was lower (43.4%) , as like that of National family health survey 2 conducted during 1998-1999 (49.7%). Out of among the 65 anemic cases , which is statistically significant (P value < 0.002) but it is lower in our study as compared to other studies.Observed prevalence of anemia may be due to factors like acute blood loss during delivery & chronic blood loss due to various inflammation & infections

Among 150 pregnant women studied in our region around Karad rural area observed percentage of anemia was 43.4 with more prevalence of moderate anemia in 2nd & 3rd trimester. According to blood indices & peripheral smear analysis predominantly microcytic hypochromic (55.4%) anemia was observed.

Conclusion:

In our area due to the regular ANC visits& proper intake of recommended iron folic acid supplementation throughout pregnancy with antihelminthic treatment, there is lower percentage of anemia as compared to other studies carried out in Maharashtra & other region.

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