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RESEARCH ARTICLE

Prevalence of Anaemia in Pregnancy in a Tertiary Care Hospital

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Abstract
Anemia is defined as Hb less 11 gm% , according to WHO definition. We have conducted a retrospective study for 2 years (Jan 2019 – Jan 2021) on pregnant women in the reproductive age group. We have done stratification of cases as mild, moderate and severe anemia. Accordingly , total 31879 women were studied, out of wihich 10392(32.59%) had mild anemia, (2.007%) had moderate anemia and 728(2.28%) had severe anemia in tertiary regional centre, Vijayapura. The centre was functioning throughout covid period with isolation wards and facilities to deliver for covid positive pregnant women.
Keywords: Anemia, pregnancy, knowledge, sociodemographic status.

1 | INTRODUCTION

Anemia is a global burden (prevalence 32.9% in 2010) (1), particularly during pregnancy, affecting up to 56% of pregnant women in nonindustrialized countries and around 20% in industrialized countries (2, 3). Anemia during pregnancy is most frequently caused by **iron** deficiency (4), with other causes including uncorrected anemia due to heavy menstrual bleeding (i.e., low iron stores preconception) and maternal hemorrhage. In fact, the 2010 global burden of disease study calculated the years lost to disease related to anemia due to maternal hemorrhage as 1-2 years per 100,000 cases (5).

Anemia is one of the most common nutritional deficiency disorders affecting the pregnant women; the prevalence in developed countries is 14%, in developing countries 51%, and in India, it varies from 65% to 75%. (6) (7)

Material and methods: The present Case control study was carried out at Primary Health Centre, to determine the risk factors leading to anemia in pregnancy. A total of 31879 pregnant females were registered. Laboratory test were done and females having hemoglobin less than 11mg/dl were considered anemic. Anemic females were considered cases

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and females having Hb >11mg/dl were considered controls. Data analysis was done using SPSS software.

2 | MATERIALS AND METHODS

Study design: The present was a Case control study Study area: Total population covered by approximately 31879 people.

Sample size: Pregnant women visiting the ANC clinic were enrolled by health worker separately for the first & the subsequent visit of pregnant women. A total 308 pregnant women visiting the health center were enrolled. 2 groups were made by systematic random sampling. Among 2 groups 50 were cases and 50 were controls.

Inclusion criteria: For cases were, hemoglobin count less than 11gm% & for controls was hemoglobin count more than 11gm%.

Study procedure: Informed consent was obtained & explanation as to the purpose of study was 20 offered. Thus, pregnant women were interviewed with predesigned, pretested, semi structured questionnaire. A detailed demographic profile of the women, that is, age, age at first pregnancy, religion, family size, education, and occupation was collected. Socioeconomic classification suggested by B.G. Prasad was adopted & updated(9) .

Laboratory method: Hemoglobin level was estimated by Sahli's acid hematin method of hemoglobin estimation / cyanmethhaemoglobin in automatic 3/5 part analyser. According to World Health Organization (WHO), hemoglobin level below 11g/dL is labeled as anemia during pregnancy. The same criteria were used for diagnosing anemia in pregnancy.

Data analysis: Data analysis was performed using SPSS 21. Descriptive statistics, including mean, range, & standard deviations, were calculated for all variables. Proportions were compared using Chi-square tests & chi square for trend at 0.05 level significance. Assessing the iron status of populations (3) is the report of a joint WHO and US Centers for Disease Control and Prevention (CDC) Technical Consultation held in Geneva, Switzerland, 6-8 April 2004, with the participation of 34 experts. With the ultimate goal of planning effective interventions to combat both iron deficiency and anaemia, the objectives of the Consultation were to review the indicators currently available to assess iron status, to select the best indicators for assessing the iron status of populations, to select the best indicators to evaluate the impact of interventions to control iron deficiency in populations, and to identify priorities for research related to assessing the iron status of populations. This Consultation was preceded by a short WHO/CDC working group meeting held in January 2004 to review the literature on indicators of iron status and to select indicators for discussion. In April 2004, the Consultation was provided with literature reviews on indicators of iron status, including red blood cell (RBC) parameters, ferritin, free erythrocyte protoporphyrin, serum and plasma iron, total iron binding capacity, transferrin saturation and serum transferrin receptor as well as a review on the interpretation of indicators of iron status during an acute phase response.

Total cases month & year.

1. 516 jan 19
2. 484 feb 19
3. 675 march 19
4. 1448 April 19
5. 1448 may 19
6. 810 June 15
7. 1606 july 19
8. 1749 august 19
9. 887 sep 19
10. 986 oct 19
11. 1851 nov 19
12. 843 dec 19
13. 910 jan 2020
14. 899 feb 2020

15. 1603 march 2020
16. 1324 apr 2020
17. 211 may 2020
18. June 15 1606
19. 1284 july 2020
20. 1126 august 2020
21. 887 sep 2020
22. 986 oct 20
23. 1851 nov 20
24. 843 dec 20
25. 1480 jan 2021
26. total cases 31879 samples of patient received out of which 728 is less than 7 gm% haemoglobin (2.28%) and 640 is 8 gms % (20.7%)and 10392 is less than 11gms% (32.59%).

3 | RESULTS

The present study revealed that the age of the respondents ranges from 19 to 29 years. It was seen that majority of the age of study participants ranged from 20 to 25 years. With mean age being 22 years.

The overall mean haemoglobin (Hb) was 11.55g/dL in controls, whereas it was seen that among the cases it was 9.58g/dL.It would seem that diet, family size, education, social class, gravida and parity are associated with anemia in pregnancy.total cases 31879 samples of patient received out of which 728 is less than 7 gm% haemoglobin (2.28%) and 640 is 8 gms % (20.7%)and 10392 is less than 11gms% (32.59%).

4 | DISCUSSION

Indian Council of Medical Research surveys showed that over 70% of pregnant women in the country were anemic.[5] Similar prevalence rate of anemia (61%) in pregnant women was observed in the present study. In contrast, very high prevalence was observed by Viveki et al., Totega, Agarwal et al., and Gautam et al. (82.9%, 84.9%, 84%, and 96.5%, respectively).[4],[7],[11],[12] However, lower prevalence was reported from Nepal (42.5%) and Haryana (51%) and NFHS-2 and 3 (49.7%).[4],[6],[6].

5 | CONCLUSIONS

After adjusting for all the possible covariates there seems to be significant association between Hb levels and age group, education level, family size, diet, gravida and parity.. Pregnancy requires additional maternal absorption of iron. Maternal iron status cannot be assessed simply from hemoglobin concentration because pregnancy produces increases in plasma volume and the hemoglobin concentration decreases accordingly. This decrease is greatest in women with large babies or multiple gestations. However, mean corpuscular volume does not change substantially during pregnancy and a hemoglobin concentration <95 g/L in association with a mean corpuscular volume <84 fL probably indicates iron deficiency. Severe anemia (hemoglobin <80 g/L) is associated with the birth of small babies (from both preterm labor and growth restriction), but so is failure of the plasma volume to expand. Hemoglobin concentrations >120 g/L at the end of the second trimester are associated with a </=3-fold increased risk of preeclampsia and intrauterine growth restriction. The minimum incidence of low birth weight (<2.5 kg) and of preterm labor (<37 completed weeks) occurs in association with a hemoglobin concentration of 95-105 g/L. This is widely regarded as indicating anemia in the pregnant woman but, if associated with a mean corpuscular volume >84 fL, should be considered optimal. Women's education, SES and household sanitation were the most important underlying determinants of anaemia reduction.

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