



PROFILE OF HAEMOGLOBIN LEVELS AMONG URBAN ANTENATAL WOMEN

Anatomy

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ABSTRACT

This record-based study was conducted at a municipal hospital to determine the profile of haemoglobin levels in pregnant women. The mean age of the women was 23.06 +/- 3.60 years, mean body mass index 27.57 +/- 11.47 kg/m² and mean haemoglobin level 9.36 +/- 1.27 gms/dL. The study revealed a high level of prevalence of anaemia in pregnant women. The difference in mean haemoglobin levels in women with less than 20 weeks of gestation and those with 20+ weeks of gestation was not significant and that between primigravidae and multigravidae was also not significant. Enhanced coverage of screening of pregnant women for anaemia and compliance for iron-folic acid supplementation are required to reduce the prevalence of anaemia in pregnancy.

KEYWORDS

Anaemia, Gestation, Gravidity, Haemoglobin, Pregnancy

INTRODUCTION

India has the largest number of anaemic pregnant women, worldwide. [1, 2] Anaemia in pregnancy is a major public health problem in India. [3-5] Iron deficiency ranks among the principal causes of anaemia, which is preventable by supplementation with iron and other micro-nutrients. [6] Contributory factors for high prevalence of anaemia among pregnant women in India include early marriage and pregnancy, multiple pregnancies, inadequate birth spacing, phytate-rich cereal-predominant Indian diet, low iron and folic acid intake and high prevalence of helminthic infestation. [7] The effects of iron deficiency anaemia in pregnancy may be worsened by the presence of other risk factors, such as, malaria, [8] urinary tract infection, [9] and inflammatory bowel disease, [10] and helminthiasis. [11]

The National Family Health Survey-2 (1998-99) [12] was the first national survey to provide national and State-specific estimates of the prevalence and severity of anaemia in pregnancy. The National Family Health Survey-4 (2015-2016) Fact Sheets [13] provide the data on the prevalence of anaemia in all States and Union Territories. Data reveal that there was some progress in coverage of iron-folic acid supplementation, while screening for anaemia in pregnant women and management guidelines had not been widely implemented. [14] Universal screening and treatment of anaemia in pregnant women and pre-pregnancy interventions for reducing anaemia may be required to achieve a decline in prevalence of anaemia in pregnancy. [14] Anaemia in pregnancy increases the risk of low birth weight, [15-17] small-for-date babies, [15-17] intra uterine growth retardation, [18-20] birth asphyxia, low Apgar score at birth, [21] pre-term birth and post-partum haemorrhage. [17, 22] The objective of the present study was to determine the profile of haemoglobin levels in pregnant women.

MATERIALS AND METHODS

This record-based study was conducted at a municipal hospital in Maharashtra state, India. The data obtained from antenatal care records of 100 pregnant women (where their last menstrual period was recorded) were included in the study. Exclusion criteria included doubtful date of last menstrual period, medical problems (jaundice, hypertension, diabetic mellitus, tuberculosis) and obstetric complications (past history of premature labour, premature rupture of membrane, placenta previa, abruptio-placentae, twin pregnancy, post-term gestation, pregnancy-induced hypertension, evidence of intrauterine growth retardation and anomalies). The haemoglobin levels of the women were estimated on the same autoanalyzer in the laboratory of the municipal hospital (place of study) as part of routine investigations for all antenatal women and duly recorded on the antenatal records. Iron and folic acid supplementation, as per standard protocol for antenatal care, was administered to all women and recorded. Haemoglobin level of more than or equal to 11 gm/dL was

considered as normal. The recommendations of the World Health Organization [23] were used for categorizing anaemia in pregnant women as mild (10.0-10.9 gm/dL), moderate (7.0-9.9 gm/dL) and severe (<7gm/dL).

The data were entered in Microsoft Excel (Microsoft Corporation, Redmond, WA, USA) and were statistically analyzed using EpiInfo Version 7.0 (public domain software package from the Centers for Disease Control and Prevention, Atlanta, GA, USA). Data were presented as mean and standard deviation (SD). The 95% confidence interval (CI) was presented as: [Mean-(1.96)*Standard Error] to [Mean+(1.96)*Standard Error]. The standard error of difference between two means was computed. Statistical significance was determined at p<0.05.

RESULTS AND DISCUSSION

In all, records of 100 pregnant women that complied with the inclusion and exclusion criteria were analyzed. The mean age of the women was 23.06 +/- 3.60 years (95% CI: 22.35-23.77 years), mean BMI 27.57 +/- 11.47 kg/m² (95% CI: 25.32-29.82 kg/m²) and mean haemoglobin level 9.36 +/- 1.27 gms/dL (95% CI: 9.11-9.61 gms/dL). Among women with less than 20 weeks of gestation (n=28), the mean age was 23.36 +/- 3.32 years (95% CI: 22.13-24.59 years), mean haemoglobin level 9.55 +/- 1.00 gms/dL (95% CI: 9.18 - 9.92 gms/dL and the mean gestational age was 16.64 +/- 2.67 weeks (95% CI: 15.65-17.63 weeks). For women with 20+ weeks of gestation (n=72), the mean age was 22.24 +/- 3.71 years (95% CI: 22.09-23.80 years), mean haemoglobin level 9.11 +/- 1.68 gms/dL (95% CI: 8.48-9.73 gms/dL and the mean gestational age 32.04 +/- 2.25 weeks (95% CI: 31.20-32.87 weeks).

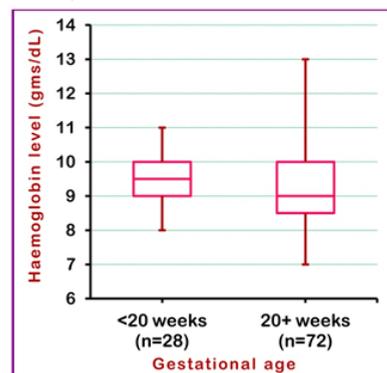


Figure-1: Haemoglobin levels and gestational age

In the present study, the overall prevalence of anaemia was 87% - mild anaemia (24%), moderate anaemia (57%) and severe anaemia (6%). This finding is comparable to that of other studies [24, 25]. Another study [26] from Pune, India, reported that the overall prevalence of anaemia in pregnant women was 66.7%.

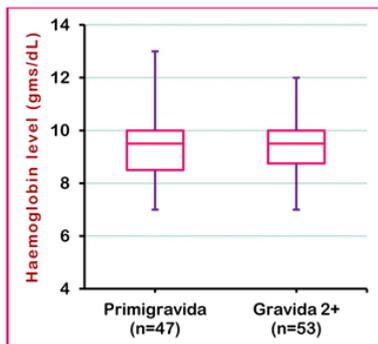


Figure-2: Haemoglobin levels and gravidity

The third quartile was identical in the two groups (10 gms/dL). The median haemoglobin level was 9.5 gms/dL (group with less than 20 weeks of gestation) and 9 gms/dL (group with 20+ weeks of gestation). The maximum haemoglobin level was 11 gms/dL in the former group and 13 gms/dL in the latter group (Figure-1). However, the difference in the mean haemoglobin levels in the two groups was not statistically significant ($Z=1.607$; $p=0.107$).

The third quartile, median and minimum haemoglobin levels were identical for primigravida and women who with gravidity status of 2 or higher. The maximum haemoglobin level (13 gms/dL) was higher for primigravida, as compared to that (12 gms/dL) for their counterparts with gravidity status of 2 or higher (Figure-2). However, the difference in mean haemoglobin levels in the two groups was not statistically significant ($Z=0.075$; $p=0.939$). Anaemia in pregnancy is generally more frequent in multigravidae due to repeated pregnancies with inadequate spacing.

CONCLUSION

The study revealed a high level of prevalence of anaemia in pregnant women. The difference in mean haemoglobin levels in women with less than 20 weeks of gestation and those with 20+ weeks of gestation was not significant and that between primigravidae and multigravidae was also not significant. It is necessary to increase the coverage of screening of pregnant women for anaemia and ensure compliance for iron-folic acid supplementation to reduce the prevalence of anaemia in pregnancy.

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