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Original Research

Retrospective evaluation of incidence of iron deficiency anemia among pregnant women

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ABSTRACT

Background: The most common true anemias during pregnancy are iron deficiency anemia and folate deficiency megaloblastic anemia, which are more common in women who have inadequate diets and who are not receiving prenatal iron and folate supplements.Hence; the present study was undertaken for assessing the incidence of iron deficiency anemia among pregnant women. **Materials & methods:** Data records of a total of 70 pregnant subjects were enrolled in the present study. Complete demographic details of all the subjects were obtained from the record files. Analysis of the hematological profile of all the patients was done using the data record files. All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software. **Results**: 22 subjects in the present study were anemic. Overall prevalence of iron deficiency anemia in the present study was 31.42 percent. Significant results were obtained while assessing the residence-wise distribution of patients. **Conclusion:** Iron deficiency anemia is significantly prevalence among pregnant women. Therefore; adequate educational and awareness programs are advocated for increasing the awareness about the severity of disease.

Key words: Iron deficiency anemia, Pregnant

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INTRODUCTION

Anemia is a condition where the red blood cell number or their oxygen-carrying capacity is insufficient to meet physiologic needs, and is conventionally taken as haemoglobin (Hb) value that is less than two standard deviation (SD) below the median value for healthy matched population by age, sex, altitude, smoking, and pregnancy status.[1-3]

Normal physiologic changes in pregnancy affect the hemoglobin (Hb), and there is a relative or absolute reduction in Hb concentration. The most common true anemias during pregnancy are iron deficiency anemia (approximately 75%) and folate deficiency megaloblastic anemia, which are more common in women who have inadequate diets and who are not receiving prenatal iron and folate supplements. Severe anemia may have adverse effects on the mother and the fetus. Anemia with hemoglobin levels less than 6 gr/dl is associated with poor pregnancy outcome. Prematurity, spontaneous abortions, low birth weight, and fetal deaths are complications of severe maternal anemia.[4-8]

Hence; under the light of above mentioned data, the present study was undertaken for assessing the incidence of iron deficiency anemia among pregnant women.

MATERIALS & METHODS

The present study was undertaken in the department of human physiology of the medical institute and it included assessment of the incidence of iron deficiency anemia among pregnant women.Ethical approval was obtained from institutional ethical committee. Data records of a total of 70 pregnant subjects were enrolled in the present study. Complete demographic details of all the subjects were obtained from the record files. Exclusion criteria for the present study included:

- Subjects with presence of diabetes or hypertension,
- Subjects with any known drug allergy,
- Subjects with presence of any form of malignancy

After meeting the exclusion criteria, analysis of the hematological profile of all the patients was done using the data record files. Criteria described in the previous literature were used for assessing the prevalence of iron deficiency anemia. A serum ferritin concentration <30 µg/L together with an Hb concentration <11 g/dL during the 1st trimester, <10.5 g/dL during the 2nd trimester, and <11 g/dL during the 3rd trimester are diagnostic for anemia during pregnancy.[8- 10]All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software. Chi- square test was used for assessment of level of significance.

RESULTS

In the present study, assessment of a total of 70 pregnant subjects was done. Mean age of the patients of the present study was 28.9 years. Majority of the patients belonged to the age group of 25 to 30 years. Mean weight and mean BMI of the patients of the present study was 59.8 Kg and 28.45 Kg/m^2 respectively. 22 subjects in the present study were anemic. Overall prevalence of iron deficiency anemia in the present study was 31.42 percent.

In the present study, 9 anemic patients belonged to the age group of 25 to 30 years. 6 patients belonged to the age group of less than 25 years. 7 patients belonged to the age group of more than 30 years. 15 patients had rural residence while 7 patients had urban residence. Significant results were obtained while assessing the residence-wise distribution of patients.

Table 1: Demographic profile

Parameter		Number
Age group (years)	Less than 25	23
	25 to 30	26
	More than 30	21
Mean weight (Kg)	59.8 ± 5.33	
Mean BMI (Kg/m^2)	28.45 ± 2.28	

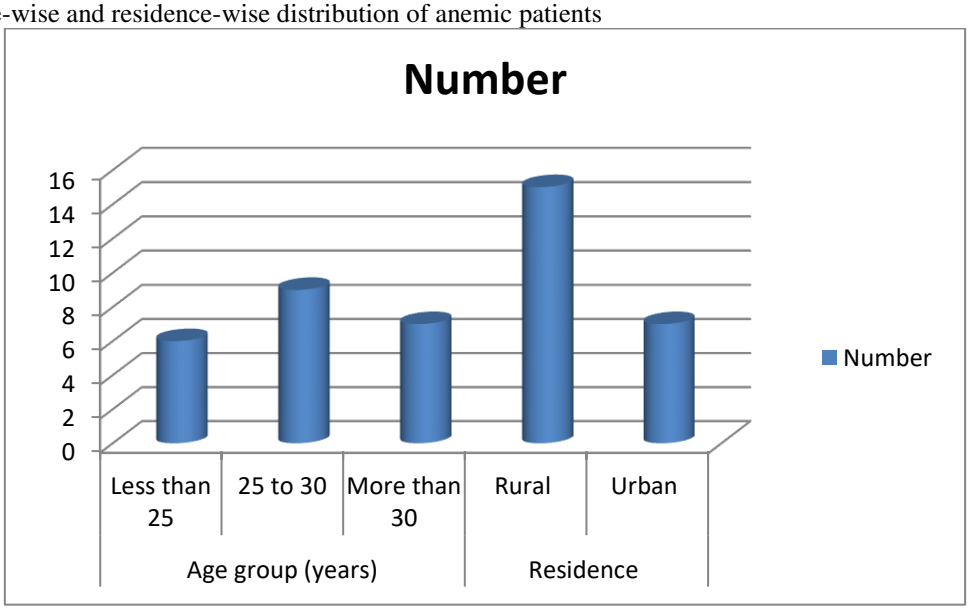
Table 2: Prevalence of iron deficiency anemia

Parameter	Number of patients	Percentage of patients
Iron deficiency anemia	22	31.42

Table 3: Age-wise and residence-wise distribution of anemic patients

Parameter		Number	p- value
Age group (years)	Less than 25	6	0.12
	25 to 30	9	
	More than 30	7	
Residence	Rural	15	0.00
	Urban	7	

Graph 3: Age-wise and residence-wise distribution of anemic patients



DISCUSSION

Anemia is generally defined according to hemoglobin levels, which may vary according to many factors most importantly age, gender, and ethnicity. Once anemia is recognized, the possibility of iron deficiency should be considered. Abnormalities in red blood cell indices on complete blood count typically precede the development of lowered hemoglobin levels. Iron deficiency usually develops slowly over time, and may not be symptomatic, or clinically obvious. Once iron stores are completely depleted, iron accessibility to the tissues decline leading to symptomatic anemia.[8, 9]

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%. Anemia is the second most common cause of maternal death in India and contributing to about 80% of the maternal deaths caused by anemia in South East Asia. Anemia is also an established risk factor for intrauterine growth retardation, leading on to poor neonatal health and perinatal death.[10]

In the present study, assessment of a total of 70 pregnant subjects was done. Mean age of the patients of the present study was 28.9 years. Majority of the patients belonged to the age group of 25 to 30 years. Mean weight and mean BMI of the patients of the present study was 59.8 Kg and 28.45 Kg/m^2 respectively. 22 subjects in the present study were anemic. Overall prevalence of iron deficiency anemia in the present study was 31.42 percent. Adam Iet al assessed the prevalence, types and determinant of anemia during pregnancy in Sudan. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline was followed. Sixteen cross-sectional studies included a total of 15, 688 pregnant women were analyzed. The pooled prevalence of anemia among pregnant women in Sudan was 53.0%. The meta-analysis showed no statistical significant between the age, parity between the anemic and no anemic women. Malaria was investigated in six studies. Pregnant women who had malaria infection during pregnancy were 1.94 times more likely to develop anemia than women who had no malaria infection. Six (37.5%) studies investigated type of anemia. The pooled prevalence of iron deficiency anemia (IDA) among pregnant women in Sudan was 13.6%. There is a high prevalence of anemia among pregnant in the different regions.[11]

In the present study, 9 anemic patients belonged to the age group of 25 to 30 years. 6 patients belonged to the age group of less than 25 years. 7 patients belonged to the age group of more than 30 years. 15 patients had rural residence while 7 patients had urban residence. Significant results were obtained while assessing the residence-wise distribution of patients. Srour MA et al investigated the prevalence of anemia and iron deficiency among pregnant women and its association with pregnancy outcome in Hebron Governorate in southern Palestine. This is a cross-sectional study that included 300 pregnant women in their first trimester and 163 babies. Maternal anthropometric and socioeconomic and newborns' data were collected. Complete blood count for study subjects and maternal serum ferritin were measured. The prevalence of iron deficiency anemia among pregnant women was 25.7% and 52% of them had depleted iron stores. When pregnant women were grouped into three hemoglobin (Hb) tertile groups, a significant difference was observed between maternal Hb and newborns' birth weight (P= 0.009), height (P= 0.022), head circumference (P= 0.017), and gestational age (P= 0.012). There was a significant association between maternal serum ferritin and frequency of low birth weight (P= 0.001) and frequency of preterm delivery (P= 0.003). No significant association was observed between maternal anthropometric measures or the socioeconomic status and pregnancy outcomes. Iron deficiency is a moderate public health problem among the study subjects.[12]

CONCLUSION

From the above results, the authors conclude that iron deficiency anemia is significantly prevalence among pregnant women. Therefore; adequate educational and awareness programs are advocated for increasing the awareness about the severity of disease. However; further studies are recommended for better exploration of results.

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