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Original Research Article

Prevalence of anemia in pregnant mothers and their outcome: a study in a semi urban area

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ABSTRACT

Background: One of the most common disorders associated with nutritional deficiencies is anaemia. The etiology of anemia during pregnancy among women in developing countries is multifactorial and varies by geographic region. Hence this study was conducted to assess the prevalence of anemia among the pregnant women in our geographical area along with the outcome.

Methods: The patients age, weight, BMI, parity, etc were noted and blood was collected for blood investigations which included random sugar levels, complete blood picture apart from haemoglobin levels. Hemoglobin was calculated by Sahli's method and classified according to the WHO classification for pregnant women.

Results: The predominant age group of the 486 patients was 20-24 years, followed by 25-29 years. 291 out of the 486 patients (59.9%) were anemic and 40.1% of the patients were non anemic. 19.8% of the patients had mild anemia, 33.3% of the patients had moderate anemia, and 6.8% of the patients had severe anemia.

Conclusions: Information and interaction, and good nutritional diet and medication is important to reduce the incidences of anemia and thereby the morbidity and mortality associated with it.

Keywords: Anemia, Foetal outcome, Pregnant women

INTRODUCTION

One of the most common disorders associated with nutritional deficiencies is anaemia. It has been estimated by WHO that about one third of the population throughout the world are affected by this disorder.¹

Around 14% of the pregnant women in the developed countries and 55% in the developing countries are affected, with 65-75% seen among the pregnant women in the Indian subcontinent.² This results in severe morbidity and mortality among the women and low birth weight and death among the new born. Many of the women are anaemic before the conception, leading to a prevalence of anaemia among the no pregnant women also which is estimated to be around 50%.³

The prevalence in India is very high and contributes to about 80% of maternal deaths due to anemia in south Asia. This could also be due to size of the population.⁴

Anaemia begins in childhood, worsens during adolescence in girls and gets aggravated during pregnancy. Surveys conducted in India have shown that 70% of the preschool children were anemic and so were over 70% of the pregnant women and adolescent girls in the country.⁵⁻⁷

The etiology of anemia during pregnancy among women in developing countries is multifactorial and varies by geographic region. Hence this study was conducted to assess the prevalence of anemia among the pregnant women in our geographical area along with the outcome.

METHODS

This study was conducted by the department of Gynecology at PK Das institute of Medical sciences from from Sep 2014 to Aug 2015. 486 women who had come to our OP at 20 – 26 weeks of pregnancy were included in the study. Informed consent was taken from all the patients after explaining the complete nature of the study. All the patients were interviewed with regard to their demographic and socioeconomic status and pregnant history. The patients age, weight, BMI, parity, etc were noted and blood was collected for blood investigations which included random sugar levels, complete blood picture apart from haemoglobin levels. Hemoglobin was calculated by Sahli's method and classified according to the WHO classification for pregnant women. Mild anemia was classified if the concentration was 9.0 to 10.9 gm%, moderate, if it was 7.0 to 8.9 gm% and severe in case of hemoglobin levels of >7gm%. Values above 11 gm% were considered to be non anemic. Non anemic and non pregnant women were excluded from this study. All the patients with mild and moderate anaemia were given oral iron and folate, B12 tablets. Severely anaemic patients were admitted for blood transfusion.

RESULTS

The predominant age group of the 486 patients was 20-24 years, followed by 25-29 years. 28 patients (5.8%) were below the age of 20 years and 3 (0.6%) were above 40 years. However, majority of the patients who were anaemic belonged to the 35-39 years age group followed by 35-39 age group. Even in the patients who were <20 years old, 82.1% of them were anemic (Table 1).

Table 1: Age wise distribution of patients.

Age (in years)	Number (%)	Anemic
≤19	28 (5.8%)	23 (82.1%)
20-24	185 (38.1%)	98 (53%)
25-29	173 (35.6%)	89 (51.4%)
30-34	61 (12.6%)	48 (78.7%)
35-39	36 (7.4%)	31 (86.1%)
≥40	3 (0.6%)	2 (66.6%)

291 out of the 486 patients (59.9%) were anemic and 40.1% of the patients were non anemic (Figure 1).

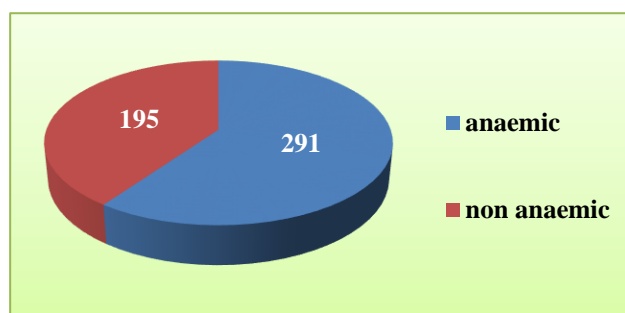


Figure 1: Incidence of anemia.

40.1% of the patients were non anemic. Based on the WHO classification, 19.8% of the patients had mild anemia, 33.3% of the patients had moderate anemia, and 6.8% of the patients had severe anemia. Out of the total 228 primiparous women, 51.8% were non anemic, 18.4% had mild anemia, 26.8% had moderate and 3.1% had severe. Among the multiparous women, 29.8% were non anemic, while 20.9%, 39.1% and 10.1% of them had mild, moderate and severe anemia respectively (Table 2).

Table 2: Type of anemia among the patients.

Type	Primi	Multiparous	Number (%)
Non Anaemic (>11 gm%)	118 (51.8%)	77 (29.8%)	195 (40.1%)
Mild 9-10.9 gm%	42 (18.4%)	54 (20.9%)	96 (19.8%)
Moderate 7-8.9 gm%	61 (26.8%)	101 (39.1%)	162 (33.3%)
Severe <7gm%	7 (3.1%)	26 (10.1%)	33 (6.8%)
Total	228 (100%)	258 (100%)	486

Most of the women with severe anemia has children with less than 2kg weight, while those with mild and moderate anemia predominantly delivered babies of 2-2.5kg weight (Table 3).

Table 3: Birth weight of the newborn.

Weight	Non anaemic	Mild	Moderate	Severe
<2 Kg	12 (6.2%)	26 (27.1%)	31 (19.1%)	21 (63.4%)
2-2.5 Kg	36 (18.5%)	59 (61.5%)	97 (59.9%)	8 (24.2%)
>2.5 Kg	147 (75.4%)	11 (11.5%)	34 (21%)	4 (12.1%)

The major consequence observed due to anemia was the low birth weight of the new born.

36.4% of the babies were preterm in case of patients with severe anemia, while it was 2.1% and 3.7% in the case of mild and moderate anemia. 7 (21.2%) of the babies with severely anaemic mothers were either still born or died within the first week of birth (Table 4).

DISCUSSION

Although many control programs for anaemia have been implemented for many years, the magnitude of the problem remains the same with no significant changes even after folic acid and iron supplements.

Severe anaemia in pregnancy is said to increase the rate of maternal morbidity and mortality during childbirth.

In the present study, most of the women were between 20-30 years old, which is the average reproductive age in our geographical area.

A very similar case was observed in a study by Dayal et al were in the predominant age group observed was 20-35 years.⁸

Table 4: Perinatal morbidity in anaemic patients.

Foetal complications	Mild (n=96)	Moderate (n=162)	Severe (n=33)	Total (%) (n=291)
Preterm delivery	2 (2.1%)	6 (3.7%)	12 (36.4%)	20 (6.9%)
Low birth weight/IUGR	85 (88.5%)	128 (79%)	22 (66.7%)	147 (50.5%)
Birth asphyxia/sepsis	4 (4.2%)	8 (4.9%)	2 (6.1%)	14 (4.8%)
IUD/ stillbirth/death	2 (2.1%)	10 (6.2%)	7 (21.2%)	19 (6.5%)

An age group of above 30 years was found to be predominant in a study by Cheema et al.⁹

The prevalence of anemia among the pregnant women in our population was around 57%. In a literature review by Noronha et al, the overall prevalence of anemia was observed to be from 18- 80%, wherein India had the highest prevalence of 80%.¹⁰ A higher prevalence of 96% was observed in a study in Pakistan in the Multan area.¹¹ In a similar study by Cheema et al, 65.6% of the cases were found to be anemic.⁹ Similar results were documented by National Family Health Survey and Singh et al.^{12,13} In yet another study, a lower prevalence of anemia (27.9% was reported.¹⁴

Normally, women with mild anemia in pregnancy are said to have decreased work capacity, and would not be able to earn their livelihood if their work involves physical labor. However, these patients may not have any adverse effects in their period of pregnancy as well as labour. Women with moderate anaemia have substantial reduction in work capacity and may find it difficult to cope with household chores and child care. They are more susceptible to infections and recovery from infections may be prolonged.

Premature births are more common in women with moderate anaemia. They deliver infants with lower birth weight and perinatal mortality is higher in these babies. The cardiac output is raised even at rest, the stroke volume is larger and the heart rate is increased. Palpitation and breathlessness even at rest are symptoms of these changes.^{15,16} These compensatory mechanisms are inadequate to deal with the decrease in Hb levels. Anaemia directly causes 20 per cent of maternal deaths in India and indirectly accounts for another 20 per cent of maternal deaths.¹⁷

In the present study, the number of women with mild anemia was 96 (19.8%), moderate was 162 (33.3%) and severe was 33 (6.8%). In a study by Cheema et al., mild anemia was observed in 60% of the cases, moderate in 30.4% and severe anaemia in 9.6%. They found dietary pattern to significantly influence the anemia status of the

patient. Women following non vegetarian (50%) or mixed pattern (28.3%) of diet were less anaemic as compared to women who were exclusively on vegetarian diet.⁹ A similar study by Dayal et al reported a prevalence of 19.19% mild, 41.4% moderate and 2.47% severe anemia in pregnant women.⁸ A similar condition was observed in Pakistan in which majority of the cases had mild anaemia (75.0%), moderate anaemia (14.8%) and severe anaemia (0.7%).¹⁸ Similarly, report from India in 2010 also showed the majority (50.9%) demonstrated moderate anaemia and followed by mild (30.17%) and severe anaemia (18.9%), respectively.¹⁹

The most common outcome of the newborn was low birth weight followed by preterm delivery. The risk of preterm delivery was more in anaemic group and increased with severity from 50 to 70 % which was reported in various studies.²⁰⁻²² However, a large Californian study, Klebanoff et al showed a doubled risk of preterm delivery with anaemia.²³

It is generally believed that anaemia in pregnancy increases with rising parity, due to repeated drain on iron stores.²⁴ However, in this study, there was no significant difference in the primi and the multiparous women. An inverse relationship between parity and anaemia was observed by few researchers as the percentage of anaemic pregnant women decreased as parity increased.^{25,26} The possible reasons for this was described as an increased awareness of the value of drugs and good diet with increasing parity as well as increased interaction with other pregnant women at the clinic.

CONCLUSION

In countries such as India, which have a high number of population as well as poor nutritional conditions, anemia is very predominant and adversely affects both maternal and foetal outcome. It is directly linked with low birth weight premature delivery and severe morbidity and mortality. Thus, proper information and interaction, and good nutritional diet and medication is important to reduce the incidences of anemia and thereby the morbidity and mortality associated with it.

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