

DRUG UTILIZATION PATTERN IN ANEMIC PREGNANT WOMEN

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ABSTRACT

Background: Anemia is one of the most common nutritional deficiency diseases observed globally affecting both developed and developing countries with major consequences to human health as well as socio economic development. Anemia is the major cause of maternal morbidity and mortality in developing countries. Drug use (DU) in pregnant women should be viewed as a public health problem, since there is lack in knowledge and the consequences for both the fetus and the mother in knowledge of the consequences for both the mother and the fetus. **Methods:** We analyzed 120 patients who are using iron supplements for anemia in pregnancy in Obstetrics and Gynecology department of Santiram medical college and general hospital, Nandyal from June 2019 to November 2019. **Results:** Among 120 patients, according to age wise distribution 23 -27 age people are more prone for anemia during pregnancy which are about 33.3%. As part of therapy elemental iron with vitamin C combinations (79 prescriptions) were mostly prescribed followed by blood transfusion (12 prescriptions). The patients are suggested to include iron rich foods & vitamin C rich foods in their diet. **Conclusion:** This study clearly showed that prescribing pattern of drugs, Tab Dutafer-XT and Tab. Limcee were the most prescribed combination. To address the issue of anemia, the patient awareness should be enhanced.

KEYWORDS: Anemia, Drug utilization, Pregnancy, Iron supplements.

INTRODUCTION

Anemia is one type of red blood cell disorder. A lack of mineral iron, Vit B₁₂, and folic acid in the blood commonly causes these disorders. Body needs iron to produce the protein hemoglobin, which helps red blood cells (RBC) carry oxygen from lungs to the rest of the body. J.B.Sharma, Meenakshi Shankar

Anemia is the major cause of maternal morbidity and mortality in developing countries due to deficiency of Iron, folic acid and Vit B₁₂(Ananda). It is more prominent in south Asia. In India up to 88% of pregnant and 40% of non-pregnant women are anemic. West Africa is the most affected and southern Africa the least. In Latin America and Caribbean, 40% of pregnant and 30% of non-pregnant are affected. Sun Eun Lee et al

The pharmacological management of anemia in pregnancy includes Ferrous Ascorbate, folic acid, Iron sucrose, Methylcobalamine, Ferric Carboxy Maltose. The most commonly used combination of therapy is iron supplements with vitamin C supplements as it helps to increase the iron absorption. The demand of vitamin B₁₂ increases during pregnancy due to rapid cell multiplication resulting from the uterine enlargement, placental development, HELLEGERS A et al. The aim

of the therapy in anemia is to reduce the morbidity, mortality and complications on both mother and fetus.

Drug utilization pattern studies conducted to promote and increase the rational drug therapy and also used to evaluate the prescribing pattern and life style modification followed in anemic pregnant women.

Prevalence

- According to world Health Organization estimates, up to 56% of all women living in developing countries are anemic.^[1]
- In India, National Family Health Survey -2 in 1998 to 99 shows that 54% of women in rural and 46% women in urban areas are anemic.^[2]
- The relative prevalence of mild, moderate, and severe anemia is 13%, 57% and 12% respectively in India (ICMR data).
- According to WHO, hemoglobin level below 11gm/dl in pregnant women constitutes anemia and hemoglobin below 7gm/dl is severe anemia. The Center for Disease Control and Prevention (1990) defines anemia as less than 11gm/dl in the first and third trimester and less than 10.5gm/dl in second trimester.^[3,4]

Effects of Anaemia On Pregnancy

Maternal effects^[5,6]

- Mild anemia may not have any effect on pregnancy and labor except that the mother will have low iron stores and may become moderately to severely anemic in subsequent pregnancies.
- Moderate anemia may cause increased weakness, lack of energy, fatigue and poor work performance.

There is derangement of red cell maturation with production of abnormal precursors known as megaloblasts which can be due to deficiency of folate or Vit B12.^[7,8]

MATERIALS AND METHODS

Study Design: This study was a prospective observational study with 120 patients at Santhiram Medical college and General Hospital, Nandyal. The patients were recruited from OBG ward and medical outpatient clinics.

Study Site: This study was conducted at Santiram Medical College and General Hospital, Nandyal.

Study duration: The present study was carried out for a period of 6 months from June 2019 to November 2019

Study criteria

Inclusion criteria

- Pregnant women who have given an informed consent.
- To identify the pregnant women who are suffering with anemia.
- Pregnant women with age group of 18-40 years.

Exclusion criteria

- Pregnant women with other comorbid conditions (Diabetes, Hypertension, Hypothyroidism).
- Pregnant women who are not willing to join the study.

DISCUSSION

In collected 120 case studies of pregnant women, 10.8% (13) members belong to first trimester, 65.8% (79) belong to second trimester, 23.3% (28) members belong to third trimester. The results were expressed in table no. 1.1.

In collected 120 cases, in the age group of 18-22, 3.44% (1) belong to first trimester, 82.7% (24) belong to second trimester and 13.7% (4) belong to third trimester. In the age group of 23-27, 13.8% (10) belong to first trimester, 66.6% (48) belong to second trimester and 19.4% (14)

belong to third trimester. In the age group of 28-32, 16.6% (2) belong to first trimester, 33.3% (4) belong to second trimester and 50% (6) belong to third trimester. In the age group of 33-37, 0% (0) belong to first trimester, 42.8% (3) belong to second trimester and 57.1% (4) belong to third trimester. In the age group above 38 years, we have found 0 cases in the three trimesters. The results were expressed in table no. 1.2 and fig. no. 1.1

In collected 120 case studies, in the first trimester, 4.16% (5) were mild, 5.83% (7) were moderate, 0.8% (1) were severe i.e., 13 patients were found in first trimester. In the second trimester, 21.6% (26) were mild, 35.8% (43) were moderate, 8.3% (10) were severe i.e., 79 patients were found in second trimester. In the third trimester, 1.6% (2) were mild, 20.8% (25) were moderate, 0.8% (1) were severe i.e., 28 patients were found in third trimester. The results were expressed in table no. 1.3 and fig. no. 1.2

In collected 120 cases, in the age group of 18-22, there are 0% (0) of mild cases, 34.6% (26) are moderate, 25% (3) are severe. In the age group of 23-27, there are 84% (28) of mild cases, 53.3% (40) are moderate, 33.3% (4) are severe. In the age group of 28-32, there are 9.09% (3) of mild cases, 8% (6) are moderate, 25% (3) are severe. In the age group of 33-37, there are 6.06% (2) of mild cases, 4% (3) are moderate, 16.6% (2) are severe. In the age group above 38 years, we have found zero cases. The results were expressed in table no. 1.4 and fig. no. 1.3.

In collected 120 case studies of pregnant women, the following are the prescribing patterns. In the first trimester, 100% (13) were treated with Folic acid+ Methyl cobalamin +Pyridoxine Hcl. In the second trimester, 67.08% (53) were treated with Ferrous ascorbate + Folic acid + Methyl cobalamin, Calcium carbonate, Ascorbic acid, Iron Sucrose, Ferric Carboxy Maltose. In the second trimester, 32.91% (26) were treated with Ferrous ascorbate + Folic acid, Calcium carbonate, Ascorbic acid, Iron Sucrose, Ferric Carboxy Maltose. In the third trimester, 64.28% (18) were treated with Ferrous ascorbate + Folic acid + Methyl cobalamin, Calcium carbonate, Ascorbic acid, Iron Sucrose, Ferric Carboxy Maltose. In the third trimester, 35.71% (10) were treated with Ferrous ascorbate + Folic acid, Calcium carbonate, Ascorbic acid, Iron Sucrose, Ferric Carboxy Maltose. The results were expressed in table no. 1.5.

Table 1.1: Trimester wise distribution in anemic pregnant women.

Trimester	No. of patients	Percentage
I trimester	13	10.8
II trimester	79	65.8
III trimester	28	23.3
Total	120	100

Table 1.2: Trimester wise age-based distribution in anemic pregnant women.

Age	I Trimester	%	II Trimester	%	III Trimester	%	Total
18-22	1	3.44	24	82.7	4	13.7	29
23-27	10	13.8	48	66.6	14	19.4	72
28-32	2	16.6	4	33.3	6	50	12
33-37	0	0	3	42.8	4	57.1	7
>38	0	0	0	0	0	0	0
Total	13		79		28		120

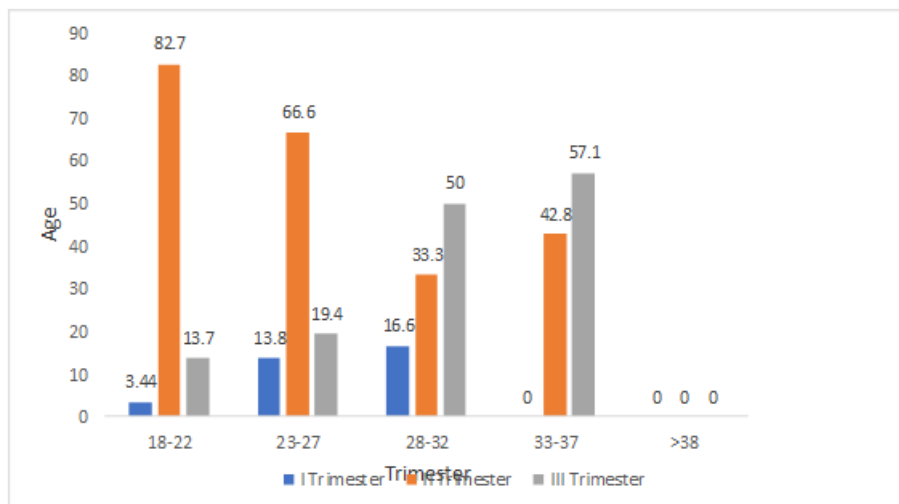
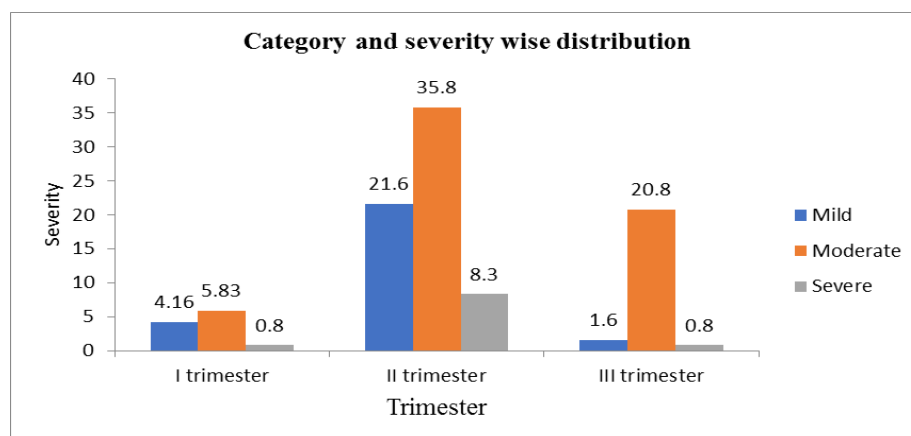


Table 1.3: Category and severity wise distribution in anemic pregnant women.

Trimester	Mild	%	Moderate	%	Severe	%	Total
I trimester	5	4.16	7	5.83	1	0.8	13
II trimester	26	21.6	43	35.8	10	8.3	79
III trimester	2	1.6	25	20.8	1	0.8	28
Total	33		75		12		120

Table 1.4: Age wise severity distribution in anemic pregnant women.

Age	Mild	%	Moderate	%	Severe	%	Total
18-22	0	0	26	34.6	3	25	29
23-27	28	84	40	53.3	4	33.3	72
28-32	3	9.09	6	8	3	25	12
33-37	2	6.06	3	4	2	16.6	7
>38	0	0	0	0	0	0	0
Total	33		75		12		120



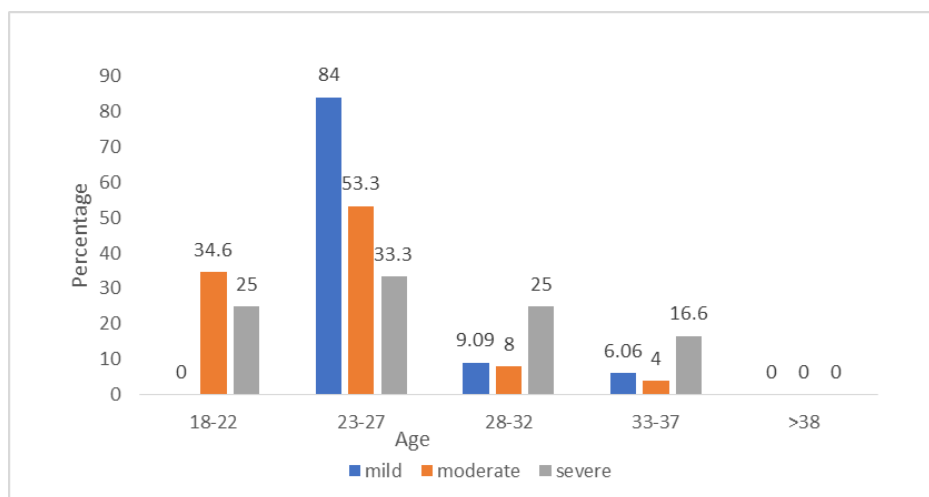


Table 1.5: Drugs used in anemic pregnant women.

S. No	Trimester	Severity	Prescribed drug	No. of patients	%
1	I	Mild	Folic acid+ Methyl cobalamin +Pyridoxine Hcl	5	4.16
		Moderate		7	5.83
		Severe		1	0.8
2	II	Mild	Ferrous ascorbate + Folic acid + Methyl cobalamin, Calcium carbonate Ascorbic acid	26	21.6
		Moderate	Ferrous ascorbate + Folic acid + Methyl cobalamin, Calcium carbonate Ascorbic acid	43	35.8
		Severe	Iron Sucrose Ferric Carboxy Maltose Ferrous ascorbate + Folic acid + Methyl cobalamin, Calcium carbonate Ascorbic acid	10	8.3
	III	Mild	Ferrous ascorbate + Folic acid + Methyl cobalamin, Calcium carbonate Ascorbic acid	2	1.6
		Moderate	Ferrous ascorbate + Folic acid + Methyl cobalamin, Calcium carbonate Ascorbic acid	25	20.8
		Severe	Blood transfusions	1	0.8

Table 1.6: Distribution based on laboratory investigations.

S. No	Laboratory investigations	Category	Average	
			Before	After
1	Haemoglobin	Mild	8.7	10.53
		Moderate	7.95	8.8
		Severe	6.38	8.34
2	RBC	Mild	3.73	4.13
		Moderate	3.42	3.49
		Severe	2.39	3.40
3	PCV	Mild	31.30	39.21
		Moderate	30.2	34.74
		Severe	22.3	24.6

Table 1.7: Life style modifications of anemic pregnant women.

S. No	Trimester	Severity	Life style modification	No. of patients	%
1	I	Mild	Plenty of fruits & vegetables, Iron rich food	5	4.16
		Moderate	Plenty of fruits & vegetables, Iron rich food, protein, fiber, whole grain	26	21.6
		Severe	Green leafy vegetables, broccoli, Citrus fruits	2	1.6
2	II	Mild	Plenty of fruits & vegetables, Iron rich food	7	5.83
		Moderate	Plenty of fruits & vegetables, Iron rich food, protein, fiber, whole grain, Red meat, Eggs, Cheese	43	35.8
		Severe	Green leafy vegetables, broccoli, Lean meat, Eggs, Fish, Legumes	25	20.8
3	III	Mild	Plenty of fruits & vegetables, Iron rich food	1	0.8
		Moderate	Plenty of fruits & vegetables, Iron rich food, protein, fiber, whole grain, Red meat, Eggs, Cheese	10	8.3
		Severe	Green leafy vegetables, broccoli, Lean meat, Eggs, Fish, Legumes	1	0.8

Table 1.8: Safety profile of drugs used in anemic pregnant women.

S. No	Trimester	Prescribed drug	Side Effects		No. of patients	%
			Side Effects	No. of patients		
1	I	Folic acid+ Methyl cobalamin +Pyridoxine Hcl	Swelling of face	2	13	10.83
2	II	Ferrous ascorbate + Folic acid + Methyl cobalamin Calcium carbonate Ascorbic acid Iron Sucrose (Inj) Ferric Carboxy Maltose (Inj)	Dark stools & Constipation Loss of appetite Headache Flatulence	42	79	65.83
3	III	Ferrous ascorbate + Folic acid + Methyl cobalamin Calcium carbonate Ascorbic acid	Dark stools & Constipation Dark stools Constipation ConstipationFlatulence	16	28	23.3

CONCLUSION

Drug prescribing study continuously helps to rule out to modify if any irrational prescribing of drugs is present. In the study many of the study participants belongs to the age group of 23-27 and majority in 2nd trimester. Majority of the patients were suffering with moderate stage of anemia according to the WHO categorization of hemoglobin. The patients developed with anemia as a result of deficiency of essential minerals in their diet thereby they are treated with ferrous ascorbate, folic acid and methyl cobalamin along with vitamin C combinations are mostly prescribed drugs with marked side effects like dark stools, constipation, loss of appetite and head ache.

It is often necessary to treat anemia based on the lab values obtained and categorizing anemia based on lab values which could help to increase quality adjusted life year. Hence prescribing pattern of drugs needs to be evaluated further in anemia cases, thereby promoting the more rational prescribing of drugs.

Continuous practice of unhealthy food habits and patterns leads to serious effects upon nutritional status as well as overall health status of an individual. Achieving

the desired change of behavior towards nutrition and health greatly depends upon gaining sufficient knowledge, change in attitude and developing good practices related to health and nutrition.

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