INTERNATIONAL JOURNAL OF PHARMACY AND ANALYTICAL RESEARCH

ISSN:2320-2831

IJPAR |Vol.7 | Issue 4 | Oct - Dec -2018

Journal Home page: www.ijpar.com

Research article *Open Access*

A study on the treatment of maternal anemia and its outcome conducted in a tertiary care hospital

Dr.Bathsa Liza Johnson*[1], Dr.Suresha B.S[1], Dr.Baburam Thapa[1], Dr.Chetan B[1], Dr.Eliza Sharon P J[1]

[1]*(Department of Pharmacy Practice, Bharathi College of Pharmacy, Karnataka, India)*

***Corresponding Author: Dr. Bathsa Liza Johnson**

Email: bathsalizaj@gmail.com

ABSTRACT

Background

Anemia is one of the most prevalent nutritional deficiency problems afflicting pregnant women. About 20% of pregnant women suffer anemia, and most of the cases are iron deficiency, folic acid deficiency, or both. WHO has estimated the prevalence of anemia in pregnant women in developed and developing countries, and that is 14% in developed and 51% in developing countries and 65-75 percent in India.

Objectives

To study the treatment given for maternal anemia and its outcome. Methodology: This was a prospective observational study conducted at the department of obstetrics and gynaecology of MIMS.250 anemic pregnant women were enrolled to the study. A well designed patient data collection form and questionnaire form was used for collecting the details. The information were documented and subjected to suitable statistical tools.

Result

Among 250 anemic pregnant women included in the study, 177(70.8%) were mildly anemic, 65(26%) were moderately anemic and 8(3.2%) were severely anemic. The study on prescription pattern of drugs for anemia revealed that 93.2% of patients were treated with Ferrous sulphate, 45.2% were treated with vitamin B Complex and 18.8% were given packed red blood cells. During the follow-up, there was a significant improvement in the Hb levels from a mean of 9.245 to 9.985 g%. The number of women having various grades of anemia reduced and the number of women with normal Hb increased during the follow-up and this was statistically significant.(χ^2-53.0155, P<0.0001)

Conclusion

Based on the findings of the study, most of the patients were mildly anemic and majority of them were treated with oral iron therapy. Our study found that the early detection and proper treatment of anemia during pregnancy is very beneficial in improving the Hb levels of pregnant women and thus reducing both maternal and fetal morbidity and mortality.

Keywords: Anemia, Morbidity, Mortality, Outcome, Treatment

INTRODUCTION

Anaemia is one of the most prevalent nutritional deficiency problems afflicting pregnant women [1] The WHO (WHO 1972) defines anemia – regardless of its cause - as the presence of a Hb level of less than 11.0 g/dl during pregnancy and less than 10.0 g/dl during the postpartum period [2]. The prevalence of anemia in pregnancy varies considerably because of differences in socioeconomic conditions, lifestyles and health seeking behaviors across different cultures [3, 4]. WHO has estimated that prevalence of anemia in developed and developing countries in pregnant women is 14 per cent in developed and 51 per cent in developing countries and 65-75 percent in India [5]

CLASSIFICATION BASED ON SEVERITY OF ANEMIA

Anemia during pregnancy is considered severe when hemoglobin concentration is less than 7.0 g/dL, moderate when hemoglobin falls between 7.0–9.9 g/dL, and mild from 10.0-11 g/Dl [6-8]. Anemia during pregnancy is a major cause of morbidity and mortality of pregnant women in developing countries and has both maternal and fetal consequences [9-12]. ICMR describes four grades of anemia depending upon the haemoglobin level as follows:

Table 1: Classification of anemia

Grades of anemia	Haemoglobin value(g/dL)
Mild	9-10.9
Moderate	7-9
Severe	<7
Very Severe	<4

TREATMENT OF MATERNAL ANEMIA

- **Diet advice:** Dietary advice to increase iron consumption is given.
- **Iron supplementation**: Where adequate diet cannot be ensured, prophylactic iron should be prescribed. Daily iron supplementation should be between 60-120 mg of elemental iron in the form of Ferrous sulphate, ferrous fumarate, of ferrous gluconate.
  Vitamin C 500mg tablets should be prescribed to increase the absorption of iron from the gut.
  Folic Acid and Vitamin B Complex can be given daily to treat anemia due to deficiency of Vitamin B or Folic Acid.
- **If Anemia is Severe:** If the anemia is severe, it cannot be treated by oral supplementation alone. The patient has to be admitted in a hospital and investigated thoroughly for other causes of anemia. She should be kept at complete bed rest with adequate high protein diet, supplementary injections of vitamin B_{12}, Folic acid and Vitamin C if necessary should be given.

Injections of iron preparations are rarely used nowadays as severe local reactions at the site of the injection can occur. Blood transfusion using only the red blood cells (packed cell transfusion) is a better form of replacing the deficient iron [13]

MATERIALS AND METHODS

This was a prospective observational study conducted at the department of obstetrics and gynaecology of MIMS. Pregnant women with a haemoglobin level of less tham 11g/dL and willing to be a part of the study were included. A well designed patient data collection form and questionnaire form was used for collecting the details. It comprised of patient's demographic details and other details like haemoglobin level at first check up and current check up. The treatment provided for anemia was also studied. Descriptive statistical methods like percentages, mean and standard deviation were used in the present study. Microsoft word and excel were used to generate graphs, tables etc., Analytical statistical methods like chi square test were used in the study.

RESULTS

The study was conducted on 250 pregnant women with anemia i.e., patients with haemoglobin

level less than 11g/dL. Mean age was found to be23.62, and the mean gestational age was found to be 35.02

Categorization of anemia based on severity

The patients were grouped into three different categories, namely, mild, moderate and severe based on the severity of anemia. Out of them, 177 (70.8%) were mildly anemic, 65 (26%) were moderately anemic and 8 (3.2%) were severely anemic.

Table 2 Distribution based on severity of anemia

SEVERITY	NO.OF PATIENTS	PERCENTAGE
mild	177	70.8
moderate	65	26
severe	8	3.2

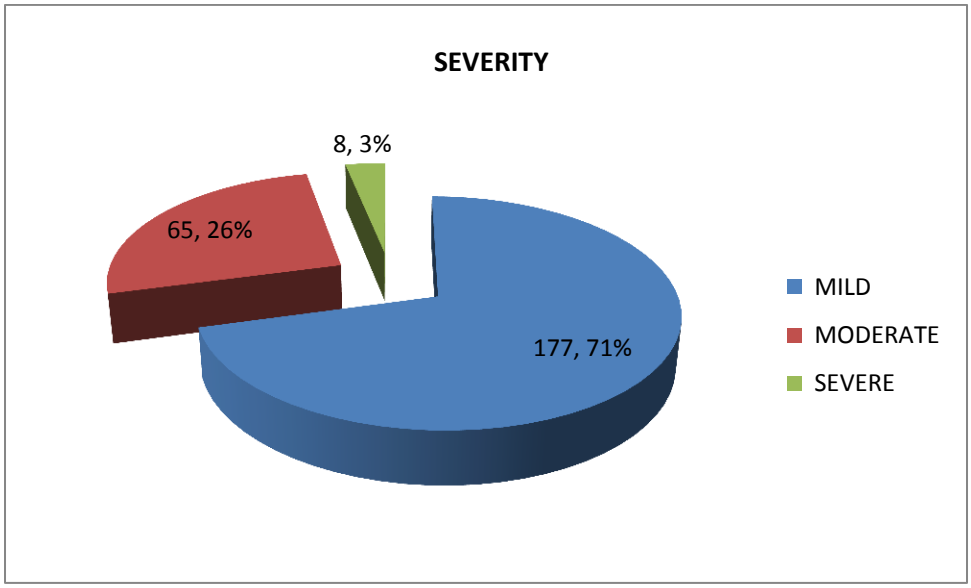

Fig 1 Categorisation based on severity

Prescription pattern of drugs given for anemia

Various drugs were prescribed for anemia, among which T.Ferrous sulphate was prescribed for 233 (93.2%) patients, Cap. Vitamin B Complex was prescribed for 113 (45.2%) patients, T.Folic acid was prescribed for 7 (2.8%) patients, T.Albendazole was prescribed for 5 (2%) patients. In severely anemic patients, packed RBC was prescribed i.e, for 47 (18.8%) patients.

Table 3 Prescription pattern of drugs for anemia

DRUGS	NO. OF PATIENTS	PERCENTAGE
FERROUS SULPHATE	233	93.2%
B. COMPLEX	113	45.2%
FOLIC ACID	7	2.8%
ALBENDAZOLE	5	2%

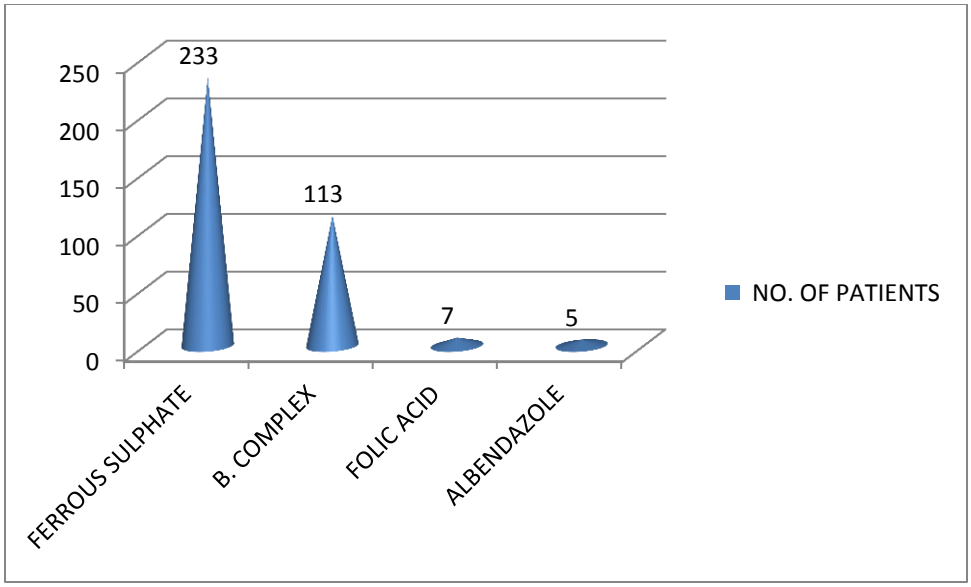

Fig2 Distribution of drugs given for anemia

Various classes of drugs for anemia

According to the study, four different classes of drugs, namely iron supplements, multivitamin and mineral supplements, folate analogues and anthelmintics were prescribed in 233(93.2%), 113(45.2%), 7(2.8%) and 5(2%) respectively.

Table 4 Prescription pattern of various classes of drugs for anemia

CLASS OF DRUGS	Number of patients(n)	Percentage (%)
Iron supplements	233	93.2
Multivitamin and mineral supplements	113	45.2
Folate analogues	7	2.8
Anthelmintics	5	2

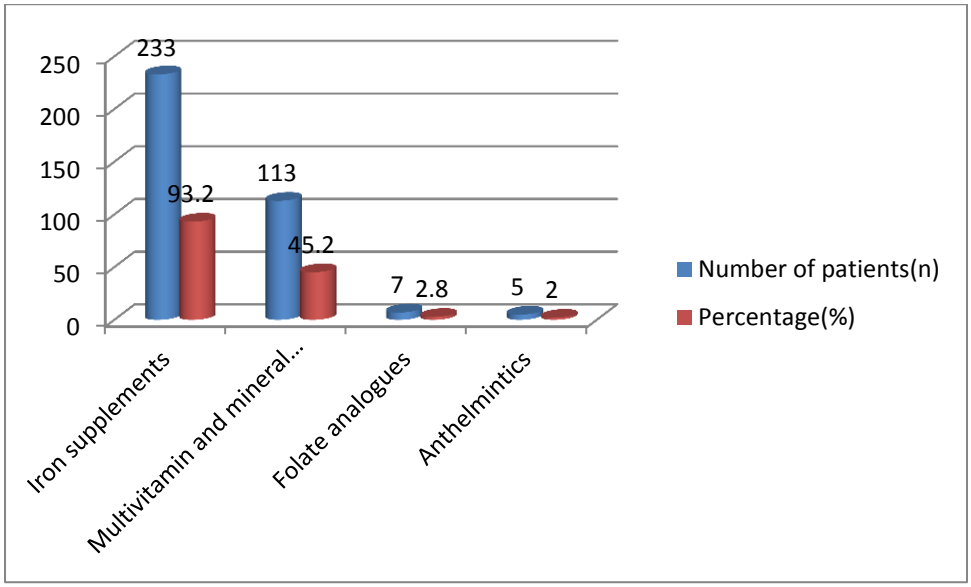

Fig 3 Pattern of use of various class of drugs

Pattern of administration of blood transfusion

Among 250pregnant women included in the study, 10(4%) were administered with packed red bloods alone and 32(12.8%) were given packed red blood cells in combination with other oral therapy for anemia.

Table 5 Pattern of use of blood transfusion

Blood transfusion	Number of patients(n)	Percentage (%)
PRBC alone	10	4
PRBC in combination	32	12.8

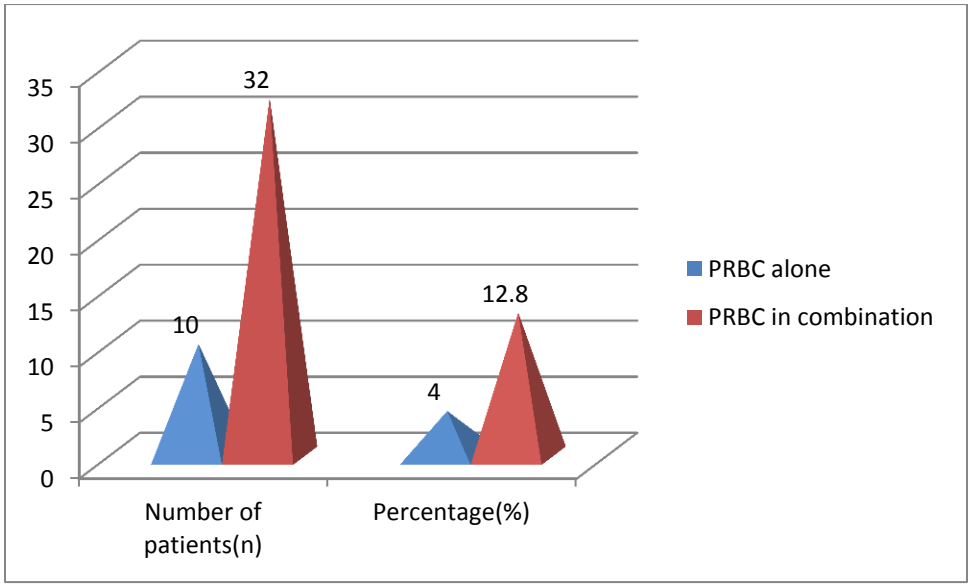

Fig 4 Pattern of use of blood transfusion

MEAN HB

The mean haemoglobin at first check up was found to be 9.2455 with a standard deviation of 10.04183.The mean haemoglobin at final check up was found to be 9.98462 with a standard deviation of 5.5155.

Table 6 Mean Hb levels at initial and final check ups

CHECK UP	MEAN	S.D
INITIAL	9.2455	10.04183
FINAL	9.98462	5.51555

Distribution of mean hb levels by age and obsteric characteristics

Table 7 Distribution of mean Hb levels by age

AGE GROUP	HB MEAN	S.D	ANOVA
18-25	9.2147	1.081	F=2.3757
25-35	9.367	0.965	P=0.095
>35	8.3	0.7651	

Table 8 Distribution of mean Hb levels by obstetric characteristics

GRAVIDA	MEAN	S.D	ANOVA
G1	9.392	1.0572	F=2.27057
G2	9.3165	0.9946	P=0.080924
G3	8.981	1.0039	
G>4	8.8846	1.1675	
PARITY	MEAN	S.D	ANOVA
P1	9.3038	0.992	F=2.14637
P2	8.744	1.1428	
P3	9.1	1.1916	P=0.097479
P>4	8.75	0.3536	

Significant at $p<0.05$

Comparison of anemia status between baseline and at the end of the study

The number of women having various grades of anemia reduced and the number of women with normal Hb increased during the follow-up and this was statistically significant.(χ^2-53.0155, P<0.0001)

Table 9 Comparison of anemia status between baseline and full term

Hb levels	Baseline (n)	Full term (n)	X^2	P
<7	10	6		
7-9.9	165	145	53.0155	<0.0001
10-10.9	75	50		
>11	0	49		

DISCUSSION

Pregnant women are one of the vulnerable groups of a population to develop anemia particularly in developing countries. Therefore, this study aimed at evaluating the treatment given for anemia during pregnancy. Based on the findings of the study, it could be concluded that most of them were mildly anemic (70,8%), although moderate and severe cases are present. According to the results, most of the patients were treated with oral iron therapy (93.2%) and blood transfusion was given for about 18.8% patients. Our study found that the early detection and proper treatment of anemia during pregnancy is very beneficial in improving the Hb levels of pregnant women and thus reducing both maternal and fetal morbidity and mortality. Public health education on reproductive health, monitoring the compliance of women with antenatal care services and strengthening their health care seeking behaviour are important health measures to be undertaken at the community level.

REFERENCE

[1]. Thangaleela T , Vijayalakshmi P.Impact of anaemia in pregnancy.*Ind J Nutr Diet 31*,1994,9251-9256
[2]. Prevention CFDCA.CDC Criteria for Anemia in Children and Childbearing-aged women.*Morb. Mortal. Weekly Rep. 38*,1989, 400-404
[3]. Marchant T , Armstrong S and Edgar T et al.Anemia during pregnancy in Southern Tanzania.*Annals Trop Ted Parant. 96*, 2002, 477-478
[4]. Abou Zahr C and Royston E.Maternal mortality.*A global fact book*.WHO , Geneva , 1991

[5]. K.Kalaivani , 'Prevalence & Consequences of anemia in pregnancy',*Indian J Med Res.130*, 2009, 627-633
[6]. Salhan S, Tripathi V, Singh R , Gaikwad H S .Evaluation of haematological parameters in partial exchange and packed cell transfusion in treatment of severe anemia in pregnancy.Anemia.Article ID 608658, 2012, 7
[7]. Balarajan Y, Ramakrishnan U, Ozaltin E, Shankar A H,Subramanian S V. Anaemia in low-income and middle-income countries . *The Lancet. 378(9809),* 2011, 2123-2135
[8]. Esmat B ,Mohammad R,.Behnam S,Shahrzad M,Soodabeh T,Minoo A et al.Prevalence of iron deficiency anemia among Iranian pregnant women ;a systematic review and meta-analysis.*J Reprod Infert. 11(1*), 2010, 17-24
[9]. Elzahrani S S.Prevalence of iron deficiency anemia among pregnant women attending antenatal clinics at Al-Hada Hospital.*Canadian Journal on Medicine.3(1),* 2012, 10-14
[10]. Raza N, Sarwar I, Munazza B , Ayub M,Suleman M.Assessment of iron deficiency in pregnant women by determining iron status. *Journal of Ayub Medical College Abbottabad. 23(2),* 2011, 36-40
[11]. Brooker S,Hotez P J ,Bundy D A P.Hookworm-related anaemia among pregnant women : a systematic review.*PLoS Negl Trop Dis.2(9)*, 2008, e291
[12]. Viveki RG , Halappanavar AB , Viveki PR , Halki SB , Maled VS , Deshpande PS.Prevalence of anaemia and its epidemiological determinants in pregnant women.*Al Ameen J Med Sci. 5*, 2012, 216-23
[13]. M.D.Mazumdar. Anemia in Pregnancy [http://gynaeconline.com/anemia.htm]