An Observational Study on the Management of Anaemia in Pregnancy

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Abstract

Objectives: To study the current trends in the management of anaemia in pregnancy and to assess the diagnostic test report of the patient and assess the severity of anaemia in pregnancy.

Methodology: A prospective study was conducted for a period of 6 months in outpatient and inpatient OBG department of a tertiary care hospital in Bangalore, Karnataka. Data pertaining to the study was collected from patient profile forms containing patient diagnosis, demographic details and treatment chart.

Results : Out of 150 patients enrolled, evaluation of their prescriptions showcased that anaemia was managed using mono-therapy than combination therapy in pregnant women accounting to 86% of prescriptions. Oral iron formulations were frequently used in its management constituting 60% of prescriptions . A vast majority of the study population i.e, 60.4% suffered from moderate anaemia. Among various preparations available, Tab. Ferrous ascorbate, folic acid & zinc sulphate and Inj. Ferric carboxymaltose were widely used. Of the 150 prescriptions, majority of them compiled to Indian Guidelines for management of anaemia in pregnancy i.e., 68%. Whereas 32% prescriptions were irrational.

Conclusion: Anaemia being a common and significant condition during pregnancy should be diagnosed and treated at the earliest with appropriate pharmacological and non-pharmacological interventions. Implementation of prophylactic measures and awareness programs can reduce the prevalence and disease burden of anaemia in the pregnant population. There is still room for research in this field to identify the best intervention in curbing anaemia during pregnancy.

Key words *: Anaemia, pregnancy, management, oral therapy, parental iron, iron supplements, iron replacement*

Introduction:

Anaemia is a serious global health condition which is largely normalized during pregnancy owing to hemodilution [1,2]. A prevalence of 53% was observed in India which is higher than its global prevalence (36.5%) making it a significant health issue. Management is a matter of great concern due to the numerous maternal- foetal consequences. Consequences of iron deficiency anaemia in mother include reduced thermoregulation, reduced working capacity, poor concentration, increased risk of postpartum depression and complications like eclampsia, haemorrhagic shock, spontaneous abortion, need for blood transfusion, pre-term delivery, maternal mortality. Prenatal mortality, preterm delivery, low birthweight, growth restriction, increased chances of blood transfusions, infections and complications are the few significant outcomes of anaemia. Maternal anaemia can contribute to poor mental, motor development and increased risk of anaemia in the child[3].

Factors contributing to increased prevalence of anaemia include low income, illiteracy, poor diet.[2] The importance of our study lies in the serious health impact inflicted on the individuals involved. The grave lack of awareness along with the improper implementation of prophylactic and diagnostic measures in managing anemia increases the relevance of the study. The scarcity of research in identifying the best therapeutic approach is another.

Materials and Methods:

A prospective observational study was conducted at a tertiary care hospital which is a 500 bedded hospital. The study was carried for 6 months commencing from January 2021 to July 2021 in OBG department . Patients from OBG were monitored during the study period. The inclusion and exclusion criteria mentioned in the protocol were submitted and approved. The supporting data was collected for the study from authorized standard international and national journals. All inpatients and outpatients diagnosis with anemia during pregnancy in tertiary care hospital.

The patient’s medical history, medications, lab investigation, demographics details, generic names, frequency, dosing, route presence of comorbidities and complications were used to collect and required patient data in a properly design data collection form. The data sets which is used for the study were gathered from a variety of sources, including treatment charts case files, case reports, discharge summaries and laboratory reports were entered in to the data collection form. The demographic data of the patients include age, gender, weight, department, date of admission, date of discharge etc.

Limitations of the Study

The study has some limitations:

• The patients who are not willing to participate in the study

•The patients who has other comorbidities

•Patients with complications in pregnancy

•Non pregnant women

Discussion:

Our study is highly relevant as anaemia is a common condition among pregnant women and cause significant effects on both maternal and foetal health outcomes. The management of

anaemia during pregnancy can change the course of many complications during delivery, the need for blood transfusion and the risk of foetal anaemia.

The importance of our study increases as pregnancy is a special population in which lesser number of studies have been performed due to ethical issues. This study was performed as our effort to contribute to the lack of studies in pregnant anaemic women.

Our study proves that oral iron supplements are the most commonly utilized and prescribed therapeutic approach in 60% of patients for the management of anaemia during pregnancy. This finding is in agreement with the findings of the study titled, "Iron deficiency anaemia in pregnancy and Treatment options: a patient preference study" conducted by Nguyen, Vanessa.et.al (2017). This study concluded that despite disadvantages like side effects, unpalatability and the need for frequent administration; oral iron (ferrous salts and haem iron) was the preferred treatment option over parenteral iron, blood transfusion in anaemic pregnant women. [4]

In our study using 150 prescriptions, 68% were adherent to Indian Guidelines and 32% were irrational prescriptions with most common irrationality being the wrong frequency of medications administered.

Our study clearly states that parenteral iron was also effective in the management of anaemia during pregnancy with 39% of patients prescribed with the modality. This observation was in par with that of the study "Intravenous iron sucrose v/s oral ferrous fumarate for treatment of anaemia in pregnancy. A randomized controlled trial" conducted by Shruti B Bhavi et al (2017).In their study, it was proved that parenterally administered iron sucrose enhanced haemoglobin level and restores iron stores better than oral ferrous fumarate during the treatment of iron deficiency anaemia in pregnancy.[5]

Our study clearly indicates the need for early diagnosis and treatment of anaemia during pregnancy. Majority of patients about 51% were diagnosed with anaemia during the third trimester of pregnancy. The same suggestion was put forward by Umo I Esen et al (2017) in their article named, "Iron deficiency anaemia in pregnancy: The role of parenteral iron".[6]

Our study is in complete agreement with the observation of the study titled, "Ferric carboxymaltose vs. oral iron in the treatment of pregnant women with iron deficiency anaemia: an international, open-label, randomized controlled trial (FER-ASAP) (2016) conducted by Christian Breymann et al. J Perinat Med. Our study demonstrated that IV FCM is effective and was prescribed in 25% patients and was well tolerated in pregnant women with anaemia during late-stage pregnancy and that women using this treatment gave birth to healthy new-born. [7]

From the findings of another study, "Effects of different regimens of iron prophylaxis on maternal iron status and pregnancy outcome: a randomized control trial" (2016) conducted by Francesca Parisi, Cristiana Berti, et al, the effectiveness of 28 mg and 14 mg LI on maternal anaemia prevention, in comparison with FI 40 mg showed significantly higher haemoglobin and ferritin concentrations compared with controls. This points to the use of nutritional supplements and other regimens in preventing anaemia during pregnancy; thereby improving maternal health outcomes. [8]

Iron Deficiency Anaemia in Pregnancy: Novel Approaches for an Old Problem (2020) by Simone Garzon,1 Patrizia Maria Cacciato et al suggests the use of Liposomal iron .This review postulates that use of lower doses of liposomal iron is highly effective compared to usual doses

of ferrous sulphate. During pregnancy, liposomal iron significantly increases Hb and ferritin values, as suggested by clinical evidence. Therefore, liposomal iron presents itself as a good candidate in terms of compliance than iron salts for the anaemia management during pregnancy. [9]

There is an increased need to conduct more clinical trials in pregnant women with anaemia. Evaluating various available treatment options can help determine the best treatment for its management. It is equally important to create awareness among health professionals and patients about the importance of early diagnosis and treatment of anaemia in pregnancy.

Results:

Table 1 & Figure 1 represents distribution of anaemia within various trimesters of pregnancy. Anaemia was found to be more prevalent in third trimester of pregnancy.

Table 1: Distribution of Anaemia within Trimesters

S.No.	Trimester	No. of Patient	Percentage
1.	1st trimester	18	14.17%
2.	2nd trimester	44	34.64%
3.	3rd trimester	65	51.18%

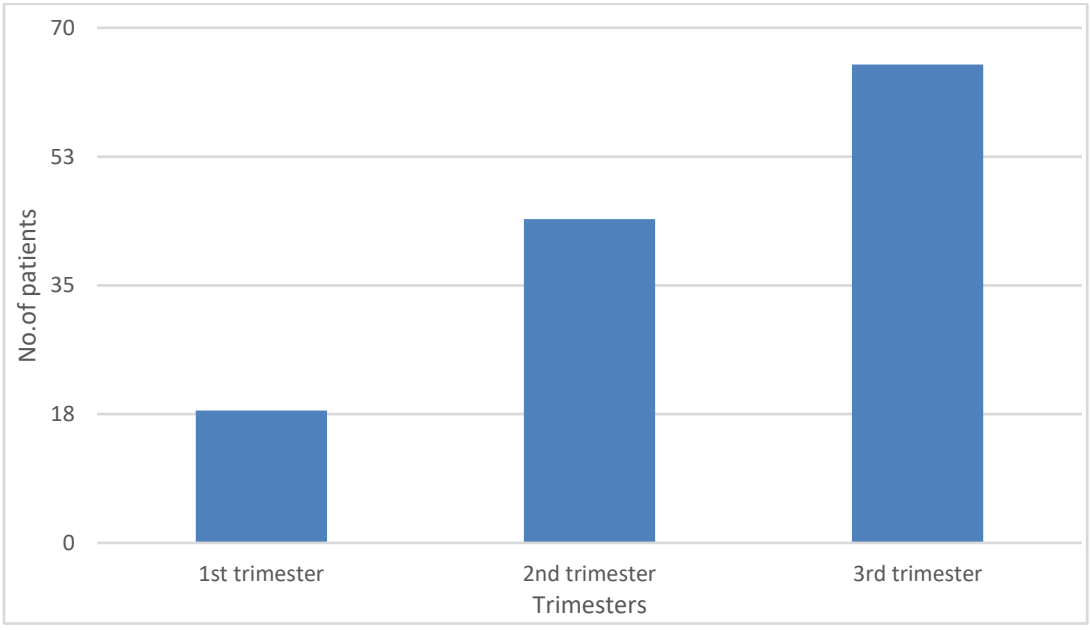

Figure 1: Distribution of Anaemia within Trimesters

Table 2 & Figure 2 severity of anaemia among study population. Moderate anaemia was more common within the study population.

Table 2: Severity of Anaemia among Study Population

S.No	Severity	No. of Patients	Percentage
1.	Mild	57	38.25%
2.	Moderate	90	60.40%
3.	Severe	2	1.342%

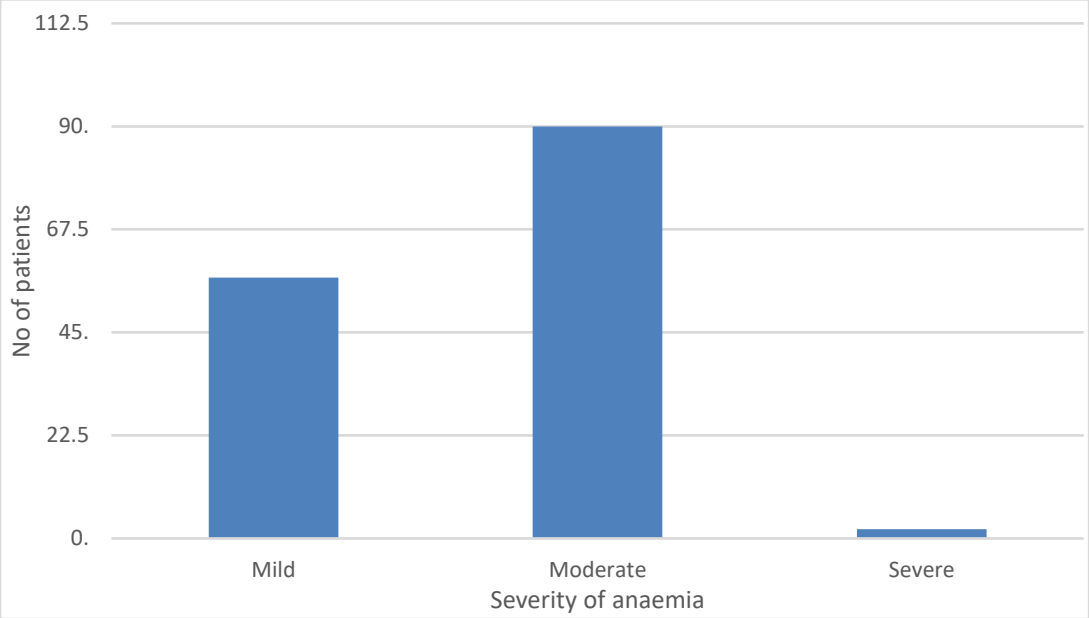

Figure 2: Severity of Anaemia among Study Population

Table 3 & Figure 3 represents the class of monotherapy drugs prescribed. 58.7% prescriptions were iron supplements, 2.45% with vitamin supplements and 38.75% with iron replacement therapy.

Table 3: Class of Monotherapy drugs

Sl No.	Drugs	Class of Drugs	No. of Prescriptions	Percentage
1.	Tab. HbZ Tab.Richar Xt Tab. Fur-XT Tab. Ferose XT, Tab. Irea Tab. Iron folic acid	Iron supplements	97	58.78%
2.	Tab.MCBM-L, Tab.Pyridoxine	Vitamin supplements	4	2.4%
3.	Inj.Ferium, Inj. iron sucrose	Iron replacement	64	38.78%

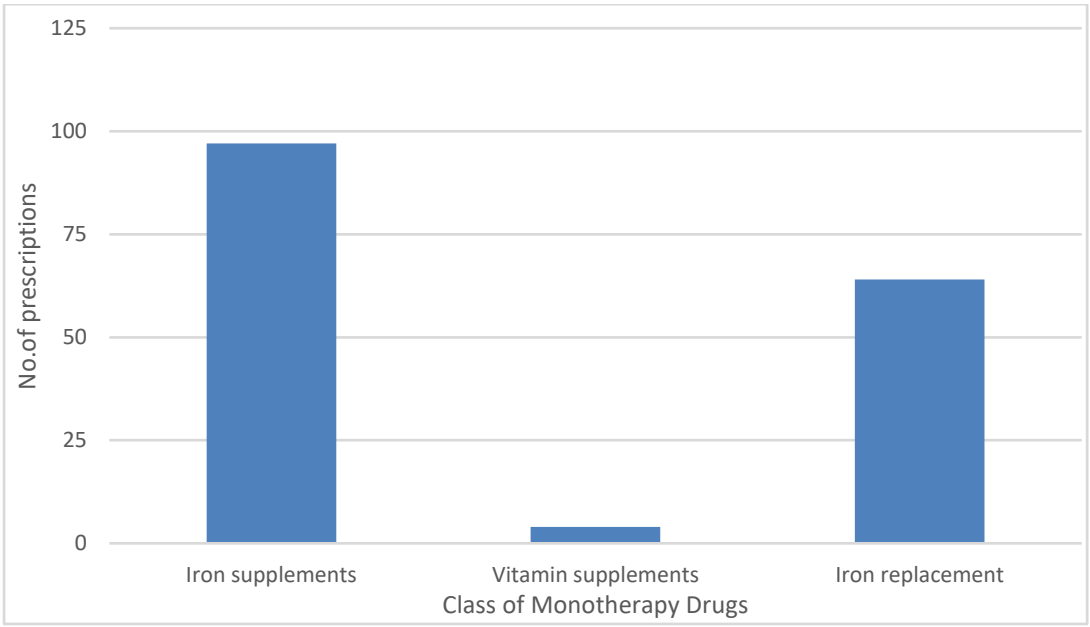

Figure 3: Class of Monotherapy Drugs

Table 4 & Figure 4 Represents the class of combination therapy prescribed. Out of 150 prescriptions, 16 had combination of drugs prescribed for management. About 50% of the combinations were iron replacement and iron supplements.

Table 4: Class of Combination Therapy

Sl No.	Drugs	Class of Drugs	No of Prescriptions	Percentage
1.	Tab.HbZ-XT + Tab.Iron folic acid Tab.Orofer XT + Tab. Folic acid	Iron supplements + iron supplement	5	31.25%
2.	Tab. HbZ-XT + Inj. Ferium Tab. HbZ-XT + Inj. Iron sucrose	Iron supplement + Iron replacement	8	50%
3.	Inj.Ferium + Inj.iron sucrose	Iron replacement+ Iron replacement	3	18.75%

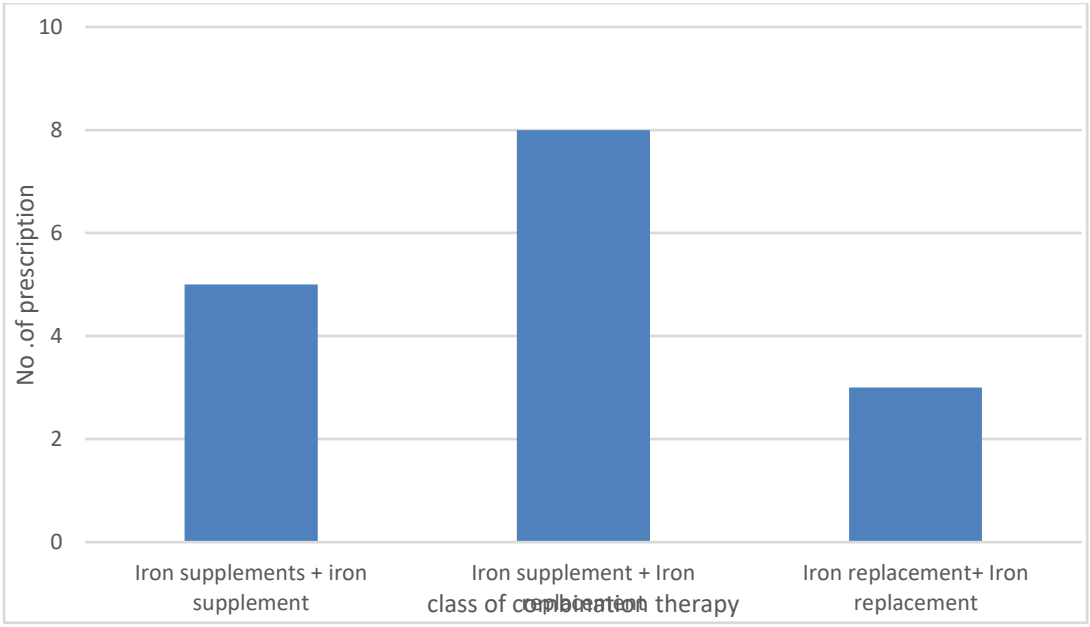

Figure 4: Percentage of Combination Therapy

Table 5 & Figure 5 shows the comparison of prescription with Indian guidelines. In 150 prescriptions, 68 % of the prescriptions were found to be rational and 32% irrational.

Table 5: Prescription Comparison with Indian Guidelines

S. No.	**Prescription Status**	**No of Prescriptions**	**Percentage**
1.	Rational Prescription	102	68%
2.	Irrational prescription	48	32%

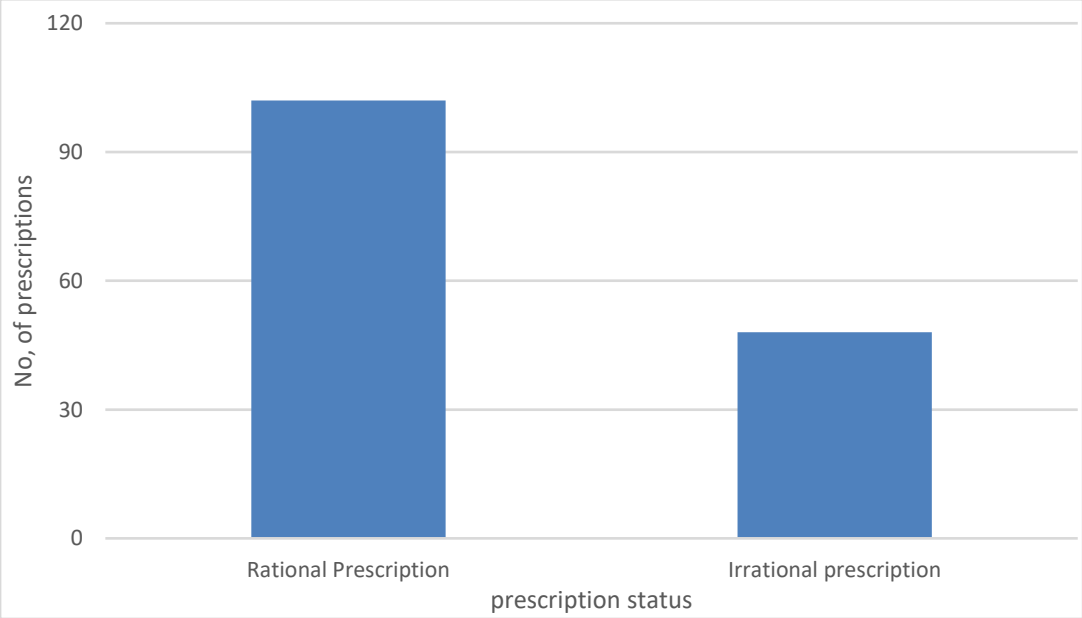

Figure 5: Prescription Comparison with Indian Guidelines

Table 6 & Figure 6 represents the various reasons of irrationality in the prescriptions in accordance to Indian guidelines**.**

Table-6: Reasons for irrationality

S. No.	Reason of irrationality	No. of Prescriptions
1.	Wrong dose	-
2.	Wrong drug	-
3.	Wrong frequency	48

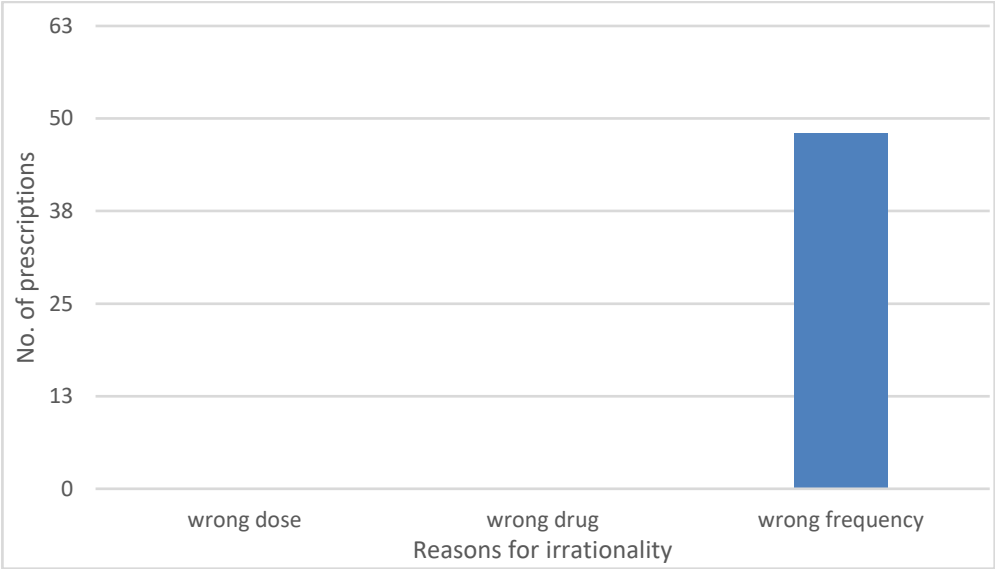

Figure 6: Reasons for irrationality

Conclusion:

From our study, “An Observational Study on the Management of Anaemia in Pregnancy”, 32 % of therapy deviated from the Indian guidelines with respect to the selection of drugs for anaemia. In this study, majority of drugs were administrated orally.

This study shows that around 86% prescriptions were monotherapy. Among them, the preferred class of drugs after assessing all the prescriptions were iron supplements (HbZ-XT).

Management of anaemia in pregnancy is governed by factors like severity, early diagnosis, access to iron-folic acid supplementation etc.

Oral iron supplements are widely used in treating anaemia usually during the early stages ’ pregnancy. Parenteral formulations are equally administered for severe deficiency or late stages of pregnancy.

Educational & awareness campaigns and counselling programs should be conducted to emphasis the relevance of treating anaemia at the earliest.
Prophylaxis of anaemia through iron-folic acid supplementation, food fortification, deworming, malaria control and enhanced testing of anaemia should be implemented.
Further studies should be conducted so that more information is obtained about the best management methods for anaemia in pregnancy.

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