International Journal of Medical Research Professionals
P-ISSN: 2454-6356; E-ISSN: 2454-6364
DOI: 10.21276/ijmrp

IJMRP

Original Research Article

Effect of Daily Versus Supervised Weekly Single Dose Oral Iron in Pregnant Women: Feto-Maternal Outcome

Ruchi Saxena[1*], Karanveer Singh Solanki[2], Madhu Patni (Bhat)[3]

[1*]Associate Professor, [2]Resident, [3]Senior Professor & Head,
Department of Obstetrics & Gynaecology, S. P. Medical College, Bikaner, Rajasthan, India.

ABSTRACT

Background: Iron supplementation programmes are most practical short term approach to alleviate the problem. The oral iron therapy is not without complications and side effects. These include mild to severe gastro-intestinal intolerance, constipation, nausea and poor patient compliance. The present study aim to compare the effect of daily versus supervised single dose weekly oral iron supplementation, so that compliance is almost 100%, on feto-maternal outcome in pregnant women.

Materials & Methods: This is a prospective study of 200 women, attending antenatal clinic of department of obstetrics and gynecology, P.B.M. hospital and Associated Group of hospitals, S.P. medical college, Bikaner (Rajasthan). The women were randomly allocated in to two groups; one receiving daily and other receiving supervised single dose weekly iron supplementation. All women were followed till 7 days after delivery; they were instructed to take iron supplements till delivery. Total number of tablets consumed in pregnancy, period of gestation at delivery and birth weight were noted. All data completed and analyzed for comparison between the two groups.

Results: In our study showed that mostly cases in primi gravid and almost equal patients in both the group have no complaints during pregnancy (77% & 73% respectively). Majority of participants with 37-40 weeks gestation (table 3) and the association between mode of delivery & iron supplementation is find to be statistically insignificant. In our study shows among group A, 99% cases has live births, 1% proportion cases has adverse fetal outcome whereas among group B around 3% participants has adverse fetal outcome and the association is statistically insignificant.

Conclusion: Our study concluded that weekly supervised iron therapy is cheaper, easy and more compliant & also has slightly better results than unsupervised daily iron therapy for prophylaxis of anemia and we have many community health workers and health programs in our country, it is not difficult to follows this weekly supervised iron supplementation regime by integrating this with other programs.

Keywords: Feto-Maternal Outcome, Iron Supplementation, Anaemia.

***Correspondence to:**

Dr. Ruchi Saxena,
Associate Professor,
Department of Obstetrics & Gynaecology,
S. P. Medical College, Bikaner, Rajasthan, India.

Article History:

Received: 11-06-2017, **Revised:** 08-07-2017, **Accepted:** 20-07-2017

Access this article online	
Website: www.ijmrp.com	Quick Response code
DOI: 10.21276/ijmrp.2017.3.4.027	

INTRODUCTION

Anemia during pregnancy is an important risk factor of morbidity and mortality. In India, approximately 1.35 lacks women die from pregnancy and child birth related conditions and 20% of these deaths are contributed by anemia. Its prevalence may be high as 88% in some parts of India.[1] Iron supplementation programmes are most practical short term approach to alleviate the problem.

The oral iron therapy is not without complications and side effects. These include mild to severe gastro-intestinal intolerance, constipation, nausea and poor patient compliance. It was seen in a study that injectable iron in two divided doses has better compliance and good results.[2]

Compliance may be defined as the extent to which behaviour of the subjects coincides with medical or health advice. It involves patient and doctor compliance. Response to iron deficiency anemia is related to the dose and schedule of iron tablets and diet. Noncompliance reduces treatment benefits and is associated with poor prognosis. Compliance may be complete, partial, erratic, nil or there may be over compliance. Typical compliance rates for prescribed medication are about 50% with a range of 0% to more than 100%. As treatment response i.e. related to the dose and schedule of a therapy, noncompliance reduces treatment benefits and can affect assessment of the effectiveness of treatment.[3,4] In addition to its potential for undermining the effectiveness of treatments, noncompliance is associated with poorer prognosis.[5] Studies have been conducted to experiment on new formulations of medicinal iron or modification of the regimen from daily to

weekly dosage in order to increase compliance to iron supplementation.[6]

The present study aim to compare the effect of daily versus supervised single dose weekly oral iron supplementation, so that compliance is almost 100%, on feto-maternal outcome in pregnant women.

MATERIALS & METHODS

This is a prospective study of 200 women, attending antenatal clinic of department of obstetrics and gynecology, P.B.M. hospital and associated group of hospitals, S.P. medical college, Bikaner (Rajasthan).

Inclusion Criteria

1. Pregnant women<20 weeks period of gestation registered for antenatal care.
2. No history of prior iron intake.

Exclusion Criteria

1. Hb level <8.5 gm/dl
2. History of chronic illness past or present pregnancy
3. History of prior blood transfusion
4. Multiple pregnancies
5. Obstetrics haemorrhage in past or present pregnancy

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Methods

After taking informed consent, complete history and physical examination, all 200 pregnant women were subjected to routine antenatal investigations. Apart from routine antenatal investigation, detailed haematological work up was also done.

The women were randomly allocated in to two groups; one receiving daily and other receiving supervised single dose weekly iron supplementation. Oral supplementation was started between 14 to 20 weeks period of gestation. Standard Government of India of NFI (large) tablets was used throughout the study. Each tablet contains dried ferrous sulphate IP 335 mg equivalent to 1000mg of elemental ferrous iron and folic acid 500µg.

Women in group A were instructed to choose any day of the week and take supervised 2 tablets direct under observation on that day either before lunch or before dinner and the regimen was repeated weekly. Women in group B was instructed to take one tablet daily and supply 3 blister packets (total 30 tablets) for one month.

All women were followed till 7 days after delivery; they were instructed to take iron supplements till delivery. Total number of tablets consumed in pregnancy, period of gestation at delivery and birth weight were noted. All data completed and analyzed for comparison between the two groups.

Table 1: Distribution of cases according to parity

Parity	Group A		Group B	
	No.	%	No.	%
Primi	68	68.0%	69	69.0%
Second	32	32.0%	31	31.0%
Total	100	100%	100	100%

Table 2: Distribution of cases according to complaints during pregnancy

Complaints	Group A		Group B		P value >0.05
	No.	%	No.	%	
No complaint	77	77.0%	73	73.0%	
Fatigue	10	10.0%	13	13.0%	
Breathlessness	3	3.0%	2	2.0%	
Vertigo	3	3.0%	3	3.0%	
Weakness	7	7.0%	9	9.0%	
Total	100	100%	100	100%	

Table 3: Distribution of cases according to gestation age at time of delivery

Gestation age	Group A		Group B	
	No.	%	No.	%
40 weeks	3	3.0%	0	0%
37-40 weeks	94	94.0%	98	98.0%
28-36 weeks	3	3.0%	2	2.0%
Total	100	100%	100	100%
Mean	38.98		38.64	

RESULTS

In our study showed that mostly cases in primi gravid (table 1) and almost equal patients in both the group have no complaints during pregnancy (77% & 73% respectively) (table 2).

The present study observed the both groups has majority of participants with 37-40 weeks gestation (table 3) and the association between mode of delivery & iron supplementation is find to be statistically insignificant (table 4).

In our study shows among group A, 99% cases has live births, 1% proportion cases has adverse fetal outcome whereas among group B around 3% participants has adverse fetal outcome and the association is statistically insignificant (table 5).

Table 4: Distribution of cases according to mode of delivery

Mode of delivery	Group A		Group B		P value =0.07
	No.	%	No.	%	
Vaginal	81	81.0%	80	80.0%	
LSCS	19	19.0%	20	20.0%	
Total	100	100.0%	100	100.0%	

Table 5: Distribution of cases according to fetal outcome

Fetal outcome	Group A		Group B		P value =0.762
	No.	%	No.	%	
Live birth	99	99.0%	97	97.0%	
Still birth	0	0.0%	0	0.0%	
Early Neonatal deaths	0	0.0%	1	1.0%	
IUD	1	1.0%	2	2.0%	
Total	100	100.0%	100	100.0%	

DISCUSSION

The main problem of daily iron supplementation is a high incidence of undesirable side effects. These factors have motivated a few experimental studies searching for alternative efficacious iron supplementation schemes that will minimize the side effects. In our study majority (68%) women were primipara. Both groups were also comparable to each other and our study group is comparable to previous studies.[7,8]

In our study shows that more than 75% patients in both groups had no complaints during antenatal period whereas 10% in group A & 13% in group B suffered from fatigue which is a common presentation of anaemia. Other complaints reported were breathlessness, vertigo and weakness. Our study group are comparable to other studies.[9] The gestational age at the time of delivery in both groups are comparable to each other maximum at 37-40 weeks. Previous studies had similar results.[7,10]

Almost 80% women in group A and group B had vaginal delivery. Both groups are comparable to each other. Our results are comparable to other studies.[11,12] In our results showed among group A 99% cases had live births, 1% proportion cases had adverse perinatal outcome whereas among group B around 3% participants had adverse perinatal outcome. Similarly Hanieh S et al[10] randomized pregnant women in a semi-rural region of VietNam, found no differences in rates of prematurity, stillbirth, or early neonatal death.

CONCLUSION

Our study concluded that weekly supervised iron therapy is cheaper, easy and more compliant & also has slightly better results than unsupervised daily iron therapy for prophylaxis of anemia and we have many community health workers and health programs in our country, it is not difficult to follows this weekly supervised iron supplementation regime by integrating this with other programs. Our study is very small, large field based and multi-centric studies are required to substantiate the iron supplementation efficacy of supervised weekly iron supplementation as public health strategy.

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Source of Support: Nil. **Conflict of Interest:** None Declared.

Cite this article as: Ruchi Saxena, Karanveer Singh Solanki, Madhu Patni (Bhat). Effect of Daily Versus Supervised Weekly Single Dose Oral Iron in Pregnant Women: Feto-Maternal Outcome. Int J Med Res Prof. 2017; 3(4):136-38.
DOI:10.21276/ijmrp.2017.3.4.027