

Original Research Article

Current status of the intake of iron folic acid in pregnant females receiving treatment from various urban localities at Kanpur district

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ABSTRACT

Background: Anemia is one of the most common conditions related to pregnancy. Anemia is most frequent during pregnancy due to insufficient intake of proper diet and IFA regimen. Supplementation of IFA for 100 days during 2nd and 3rd trimester of pregnancy significantly reduces the risk of antenatal anemia. We assess the effect of IFA supplementation with daily dosing and their outcome in urban localities of Kanpur district. Aim of this study was to assess the current status of intake of IFA in pregnant females.

Methods: This was a cross sectional study carried out in Kanpur Nagar district. Total 56 pregnant women of 2nd and 3rd trimester were assigned to daily intake of IFA for 100 days of age 15-45 years. Outcomes were measured by assessment of hemoglobin level and daily intake of IFA. Simple random sampling technique was used to select the study cases from 2 ward and 4 blocks in Kanpur district.

Results: In this study it was found that, in total 56 sample size of pregnant women of 2nd and 3rd trimester of pregnancy 37 have taken IFA in which 8 patients were anemic who have taken IFA for 100 days and 19 have not taken IFA in which 12 cases were anemic.

Conclusions: Study cases who has taken IFA during 2nd and 3rd trimester have better hemoglobin level and have low risk of anemia related pregnancy however complete course of IFA to antenatal period should must. The study cases which have not received any amount of IFA have higher chances of being anemic. Antenatal IFA supplementation must be ensured by ASHA workers to subcenter, CHC and PHC to pregnant women and provide sufficient knowledge about benefits of IFA.

Keywords: Iron and folic acid, Pregnant women, Urban localities

INTRODUCTION

Anemia is one of the most common conditions related to pregnancy. Normal physiological changes in pregnancy affect the hemoglobin and there is a relative or absolute reduction in Hb concentration. The most common anemia during pregnancy is iron deficiency anemia (approximately 75%) followed by megaloblastic anemia (due to folate deficiency). It is due to inadequate diet and not taking IFA tablets during pregnancy.¹⁻³

Our study on anemia, status of iron folic acid supplementation in pregnant females receiving treatment from various urban localities of Kanpur Nagar district focuses on collecting data by direct home visits and assessing the IFA status, general wellbeing of the anemic patients by direct personal interview using a pretested and predesigned questionnaire.^{4,5}

Nevertheless, a mild to moderate iron deficiency does not appears to cause a significant effect on fetal hemoglobin

concentration. An Hb level of 11 gm/dl in the late first trimester and also of 10 gm/dl in the second and third trimester is suggested as lower limits for Hb concentration. In an iron-deficient state, iron supplementation must be given and follow-up is indicated to diagnose iron unresponsive anemia.^{5,6} Severe anemia has adverse effects on the mother and the fetus. There is also evidence that less severe anemia is associated with poor pregnancy outcome. Major maternal complications directly related to anemia are not common in women with a hemoglobin level greater than 6 gm/dl. However, Hb levels even lower may lead to significant morbidity in pregnant women, such as infections, increased hospital stays, and other general health problems.^{4,6,7}

A lot of symptoms and signs may accompany this clinical state, to a variable degree. The commonest of these are headache, fatigue, lethargy, paresthesia, and the clinical signs of tachycardia, tachypnea, pallor, glossitis, and cheilitis.^{5,8} Some authors believe that even a mild reduction in Hb level (8-11 gm/dl) may produce a predisposition to these conditions; in contrast, other authors support a direct relationship between anemia and fetal distress only when the maternal Hb levels are less than 6 gm/dl.^{4,5,7} Iron-folic acid (IFA) supplementation given daily from early in pregnancy has long been the recommended standard approach to prevent and treat anemia. Though efficacious, daily IFA programs have had limited success in reducing anemia prevalence in developing countries because of frequent side effects leading to poor adherence, and barriers to accessing supplements at the community level.^{3,6,7}

Most low- and middle-income countries, the current recommendation is for daily intake of iron and folic acid for 100 days during antenatal period. World Health Organization (WHO) strongly recommended the use of intermittent IFA supplementation in non-anemic women in pregnancy.⁸⁻¹⁰ For estimating the compliance with iron-folic acid (IFA) therapy among pregnant women in an urban area of India WHO estimates that 58% of the women in developing countries are anemic. Thus, compliance is essential for Iron Folic Acid therapy which in turn is influenced by several social and demographic factors.^{10,11}

Present study was carried out to generate awareness, increase practices, level of compliance and the factors affecting the level of compliance among the pregnant women with iron folic acid therapy. This study also aims to study the anemia its type and to generate awareness to the general population basically pregnant women, adolescent girls and school going children to take iron and folic acid to reduce the anemia and maternal mortality and iron is needed by fetus and create public awareness to minimize the anemia in general population.

In survey of anemic cases most of the patients are found anemic due to dietary unawareness, wrong methods of intake of IFA (along with tea and coffee), low

socioeconomic status, poor dietary intake, poor standards of living, low family's income and illiterate study populations.

The aim of present study was emphasized to improve the educational status of the study subjects and general public, increase the socioeconomic statuses of the patients, alleviate the standard of living, and public awareness regarding IFA intake in communities. People were encouraged to improve the personal habits and stop addiction of smoking, tobacco chewing and alcoholism. To create awareness about lifestyle related disorders like hypertension, diabetes, and thyroid to minimize the risk of morbidity among the study subjects. Pregnant women encouraged to take 100 mg elemental iron and 500 micrograms folic acid per day for 100 days to fulfil the IFA requirement of the body.

Public awareness generated in communities to combat the anemia. The benefits of blood transfusions and injectable iron-sucrose were explained in the general population. Advice for screening of anemic patients during antenatal visit in sub-centre, primary health centre and community health centre were done. ASHA health workers in the Rural/Urban area were properly trained to encourage general population for IFA supplementation. The aim of this study was assessment of current status of the intake of iron folic acid in pregnant females receiving treatment from various urban localities of Kanpur district.

METHODS

The present study entitled "study on anemia, status of iron folic acid supplementation in pregnant females receiving treatment from various localities of Kanpur Nagar district" a field based cross sectional study was conducted with help of department of community medicine GSVM Medical College Kanpur. This cross sectional study held was between 1 month (09 August 2021 to 08 September 2021 including data collection and analysis). Study carried out in pregnant women of age group 15-45 years. Simple random sampling technique used to select the study subjects in the present study.

Total population of Kanpur is 45.73 lakhs (census 2011) district were having total ward 110. Random selection of 2 ward and 4 blocks which were Jajmau (Chungi, Dadamia ki dargah-Manohar Lal degree college), Rama devi (Gandhinagar colony-Saral nursing home), Rattupurwa (Shishu Shiksha Niketan school-naya pool petrol pump) and Shyam nagar (Oriental bank-Ramleela ground). ASHA health workers along with predesigned questionnaires, home visits were done and their general and physical examinations carried out. Data were collected and verified.

Inclusion criteria

Those who given the consent and second and third trimester pregnant females were included in the study.

Exclusion criteria

First trimester pregnant females, pregnant females who having need for hospitalization and those not given consent were excluded from the study.

Tools and data collection

Samples were selected from the random block selection of Kanpur district. Data were collected from two wards of Kanpur district from Shyamnager and Jajmau initiated through clockwise manners data were collected using pre-designed and pre-tested questionnaire that fulfils the objectives of the study by home visits and filling of questionnaires. The information with regards to biosocial profile, age, and socioeconomic status, status of IFA supplementation, dietary habits, physical exercise in the study subjects by personal interviews method. For proper consultation in obstetrics and gynecology visits, minimum 4 weeks follow up done. Definite interval between iron and calcium should be maintained and both were not taken with same time. Statistical analysis done by collected data classified, tabulated form, graph and chart, also make on excel master chart and analyzed by using appropriate statistical tools as per requirement of the present study and interpretations/conclusions were made accordingly.

Ethical consideration

Ethical clearance for the study was taken by Department of Community Medicine GSVM Medical College Kanpur up. Informed consent was taken from the study cases before collecting the data.

RESULTS

The study included 56 women during antenatal period. Data were collected from the direct home visit from the pregnant women of second and third trimester by questionnaire method. Their IFA supplementation status and compliances to IFA were assessed. The socioeconomic characteristics associated with the compliances towards the consumption of IFA depicted in the observation table. The mean age of study population was (19.47) years and standard deviation (SD=7.02). About 78.58% populations were from urban area and 21.43% from rural area and most of the anemic cases were from urban area.

Among study maximum anemic cases found in lower educational status cases as well as low socioeconomic status as mentioned in other similar studies. Unemployed population consists of maximum (94.65%) anemia and in comparison, to employed population. As per modified BG Prasad classification system maximum (57%) subjects were in the social class 5 and minimum (5.36%) belonged to social class 1. Maximum social class was 5 in which most of the study subjects were present which shows the

lower socioeconomic level. In other similar studies shows there was less alcohol and smoking history.

Most of the study, cases slept well taking 6-8 hours which was required as the optimum duration for a good sleep's quality. Only 8 cases of health-related issues in which 4 case of hypertension, 2 thyroid and 2 diabetic patients were reported and 48 cases have not any health-related issues. 60.72% cases were non vegetarian and 39.32% were on vegetarian diet. 37 cases were on iron folic acid treatment and 19 cases still not taking treatment which shows there was not much awareness found regarding IFA to the study population. 2 cases feel not better due to taste issues, (12.5%) have nausea and vomiting, (33.93%) not aware about IFA, (3.58%) have service delivery issues and (40.07%) not taking due to other reason.

Table 1: Common health problem related profile of study subjects.

Any health problem	Number	Percentage
Hypertension	4	7.15
Thyroid	2	3.6
Diabetes	2	5.36
No health issues	48	85.72
Total	56	100

Table 1 shows common health related profile of study subjects. In total 56 cases only 8 cases of health-related issues in which 4 were hypertensive, 2 were identified as thyroid issues and 2 were diabetic issues.

Table 2: Distribution of study subjects according to eating habits.

Eating habits	Number	Percentage
Veg	22	39.29
Nonveg	34	60.72
Total	56	100

Table 2 shows distribution of study subjects according to eating habits. 60.72% cases were non vegetarian and 39.32% were on vegetarian diet.

Table 3: Distribution of study subjects according to receiving iron folic acid tablets.

IFA taken	Number	Percentage
Yes	37	66.08
No	19	33.93
Total	56	100

Table 3 shows distribution of study subjects according to receiving treatment of iron folic acid tablets. 37 cases were on iron folic acid treatment and 19 cases still not taking treatment which shows there is not much awareness found regarding IFA to the study population.

Table 4: Average hemoglobin percentage of the study subjects.

Number of patients	Hemoglobin percentage (mg/dl)
19	>11 (normal)
22	10-10.9 (mild)
14	7-9.9 (moderate)
01	4-6.9 (severe)

Table 4 shows 19 cases were adequate hemoglobin more than 11 mg/dl, mild hemoglobin 22 patients, moderate hemoglobin was in 14 patients, one patient was in severe anemia for which blood transfusion advised.

Table 5: Severity of anemia in study subjects.

Severity of anemia	Number of study subjects	Average hemoglobin (mg/dl)
Mild	22	10.45
Moderate	14	8.45
Severe	01	5.45
Normal	19	11.00

Table 5 shows distribution of study subjects according to severity of anemia in which 19 were normal range of hemoglobin, 22 were mild, 14 were moderate and 1 was severe anemia.

Table 6: Reason if not taking iron folic acid tablets.

If not taken IFA reason	Number	Percentage
Feels not good	2	3.57
Due to taste issues	1	1.79
Nausea/vomiting	7	12.5
Constipation	2	3.57
Not aware	19	33.93
Service delivery issue	2	3.58
Others	23	41.07
Total	56	100

Table 6 shows why study subjects not taking IFA. 2 cases not felt good, 12.5% have nausea and vomiting, 33.93% not aware about IFA, 3.58% have service delivery issues and 41.07% not taking due to other reason. Constipation issues were in 2 cases.

Table 7: Number of IFA taken by pregnant women.

How many IFA tablets taken	Number	Percentage
1 tab/day	27	48.21
2 tab/day	10	17.85
Not taken any of the doses	19	33.90
Total	56	100

Table 7 shows how many IFA tablets were taken by cases. Among 56 study subjects 48.21% were taking 1

tablet/day and 17.85% were on 2 tablet/day and 19 were not taken any of tablets.

Table 8: Trimester wise intake of iron folic acid.

Which trimester were IFA taken	Number	Percentage
First	8	21.6
Second	15	40.54
Third	14	37.83
Total	37	100

Table 8 shows trimester wise IFA taken by the study subjects. 08 cases taken IFA in first trimester, 15 cases in second trimester and 14 cases started in third trimester.

DISCUSSION

The present study was carried out in various locality of Kanpur district. 56 pregnant women were interviewed by home visits and data collected by questionnaires methods and their iron folic acid, their compliances and status of immunization were analyzed for utilization, delivery practices and factors affecting them. In the present study age, education of the pregnant women and low socioeconomic status were significantly associated with anemia. A study by Chaudhary et al observed a significant association between age and anemia.¹⁻⁴

Anemia seems to be higher among women with parity more than three in present study. Similar study conducted obese et al. studies in India demonstrated that high proportion of maternal death are due to anemia in pregnant women.⁵⁻⁷ Whereas in the present studies there was no maternal death. Maternal anemia is considered as a risk factor for poor pregnancy outcome and it threatens the life of fetus.^{8,10}

In present study 39.28% have mild anemia, 25% have moderate anemia and only 1.78% have severe anemia. Severe anemia was low like study by Kapil and Sareen (1.6%).¹¹ Moderate anemia was 25% whereas Bhargavi et al showed 40.97%. High prevalence of anemia can be attributed to low dietary intake of iron folic acid, low bioavailability of iron or chronic blood loss due to infections.¹² Present study has 64.28% anemic patients and ICMR survey showed that over 70% of pregnant women in the country were anemic.¹³ In contrast very high-rate prevalence was observed by Viveki et al (82.5%), Agerwal et al (84%) and Gautam et al (96.5%) respectively.^{14,15}

Iron deficiency is probably the most common cause of anemia in India. For this reason, under the National Iron plus Initiative (NIPI, the government of India provides daily doses of IFA to pregnant women for a period of 100 days during their pregnancy. However, despite revisions to the NIPI program with an increase in provision of elemental iron from 60 mg to 100 mg, the prevalence of

anemia in pregnant women has not come down. Reported distance to each type of facility, per information from the village representative, was also recorded.¹⁶⁻¹⁸

The burden of anemia was high about 64% in pregnant women of Kanpur Nagar district and consistent consumption of IFA/folic acid supplements during the previous trimester of pregnancy was the single most strongly inversely associated factor for anemia.¹⁶⁻¹⁸ Poor consumption of IFA supplements is a key risk factor contributing to anemia among pregnant women in Kanpur. Though anemia is a complex and multi-faceted problem which involves interaction of various nutrients, iron supplementation could alleviate a considerable proportion of anemia in India.¹⁹⁻²⁰

As observed in Kanpur Nagar, a low intake of IFA supplements resulting from a combined effect of low stocks and poor demand drives anemia among pregnant women. There was no significant difference of IFA receipt between women those who were visited by a health worker and those who were not.^{20,21} Most Ministries of Health in developing countries have policies to give pregnant women either iron by itself or combined with folic acid in tablet form (IFA tablets). The National protocols in India require the provision of 1 tablet containing 100 mg elemental iron and 0.5 mg folic acid for daily consumption to all women during pregnancy for 100 days.²²

Many experts believe that one of the main reasons that national iron supplementation programs have failed was women's "noncompliance". There are factors including health system and patient factors which determine the compliance, which are not studied extensively. There are no clear-cut offs for non-compliance. Missing 2 or more doses consecutively is usually considered as non-compliance.²³ Thus, compliance is essential for Iron Folic Acid therapy which in turn is influenced by several social and demographic factors. This study was carried out to assess the awareness, practices, level of compliance and the factors affecting the level of compliance among the pregnant women with iron folic acid therapy.²⁴

The overall compliance towards IFA tablets among the subjects was 66.08%. As depicted, the compliance was higher among the subjects from lower socioeconomic class, with increasing age and birth. The compliance was higher among the subjects with mixed diet. The subjects who received the IFA tablets free of cost had significantly higher compliance as compared to those from the private hospital who had to spend money for it.²⁵

CONCLUSION

Based on the above findings in our study pregnant women who were taken IFA have less anemic, better health, good compliances, educational statuses and better socioeconomic conditions. Overall better outcomes observed instead of who were not taken. Pregnant women

who were not taken IFA, unawareness was the main cause. Public awareness generated in communities to combat the anemia. The benefits of blood transfusions and injectable iron-sucrose were explained in the general population. Advice for screening of anemic patients during antenatal visit in sub-centre, primary health centre and community health centre were done. ASHA health workers in the rural/urban area were properly trained to encouraged general population for IFA supplementation.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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