PREVALENCE, NUTRITIONAL AND RISK FACTORS ASSESSMENT OF ANAEMIA AMONG MULTIGRAVIDA ANTENATAL WOMEN VISITING ANTENATAL OPD, GOVERNMENT MEDICAL COLLEGE AND HOSPITAL, SECTOR-32, CHANDIGARH

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ABSTRACT Anaemia is a problem prevalent globally especially among multigravida pregnant women and in the developing countries. The present study was aimed to find out the prevalence and risk factor assessment among multi-gravida antenatal women. Quantitative research approach was used to collect data of three- hundred and thirty- one subjects. The prevalence of anaemia was found 36.3%, with the mean hemoglobin level 11.28 ± 1.43. Most common anaemia prevalent was iron deficiency anaemia that was in 67 out of 120 study subjects. The highest risk factor was history of abortion and the lowest were defecation in open and bleeding in stool. There was significant association between anaemia with the age of the subjects, residence, dietary habits, education, type of family, socio- economic class score, period of gestation and many risk factors at the 0.05 level of significance. So, it is important to find out the prevalence, risk factors and causes so as to manage and prevent many consequences of anaemia in pregnancy.

INTRODUCTION

Anaemia is a global public health problem affecting both developing and developed countries with major consequences for human health as well as social and economic development. It occurs at all stages of the life, but is more prevalent in pregnant women.

According to World Health Organisation, prevalence of anaemia among pregnant women in developed countries is about 14% whereas it is still as high as 51% in the developing world.[1] Globally, anaemia contributes to about 20% of direct maternal deaths. It is responsible for a major chunk of maternal mortality-(40-60%) indirect deaths due to hemorrhage, infection, pre-eclampsia and cardiac failure.[2] Favourable pregnancy outcomes occur 30-45% less often in anaemic mothers and their infants have less than one-half of normal iron-reserves. As per WHO statistics, 58% women in India are anaemic. India contributes to about 80% of the maternal deaths due to anaemia in South Asia.[3]

The findings of a prospective, longitudinal cross-sectional study conducted over a period of 6 months in a region of rural India shows significantly high prevalence of anaemia among pregnant women. The prevalence of anaemia was 98% among the pregnant females. Out of these 41.76% had mild anaemia, 37.05% had moderate anaemia, 15.88% had severe anaemia and 3.29% very severely anaemic according to ICMR classification of anaemia. The mean haemoglobin was found to be 8.845.[1]

The findings of a retrospective cohort study conducted by Niar M, et at (2015) using anonymised hospital records of 1007 pregnant women who delivered in 5 Government Medical Colleges in Assam reveals that 35% (n=351) pregnant women had moderate to severe anaemia. Maternal Iron deficiency anaemia is a major public health problem in Assam.[4]

OBJECTIVES

1. To find out the degree and type of anaemia prevalent among multigravida antenatal women.
2. To find the association between the selected demographic variables and degree of anaemia.
3. To assess the nutritional intake of the subjects and to compare the mean nutrient intake between the anaemic and non- anaemic subjects.
4. To identify the risk factors of anaemia and to find the association between the risk factors of anaemia with the anaemic profile of the study subjects.

METHODS

By using a quantitative research approach, a descriptive study was conducted to find out the prevalence and risk factor assessment of anaemia among multigravida antenatal women visiting antenatal OPD in Government Medical College & Hospital, Sector-32, Chandigarh. The study was approved by the research and ethics committee of the institute. Three hundred and thirty-one samples were selected using the consecutive sampling technique. The subjects were explained about the study and informed written consent was obtained and confidentiality was maintained.

Demographic profile of the study subjects was assessed by using demographic profile sheet, Complete nutritional intake was calculated by using dietary assessment proforma consisting of nutrient intake of energy, carbohydrates, proteins, iron, folic acid, vitamin C, fats and Vitamin B 12 were estimated by using 24- hour recall method and diet calculation was done. Assessment of risk factors of anaemia was done by using a modified and validated version of a tool developed by Darling B Jiji and K. Rajagopal[5]. Degree of anaemia and type of anaemia prevalent among multigravida mothers from the hemoglobin level and RBC indices. The collected data was analyzed by using descriptive and inferential statistics by calculating the frequency, percentage, mean, standard deviation and chi- square test. The study was taken with the objectives

RESULTS

The analysis of demographic variables and association with the prevalence of anaemia of 331 multigravida antenatal women reveals that 132 (39.9%) of the subjects were in the age group of 26-30 years. Mean age was 27.32 ± 4.00. Majority of the study subjects reside in rural areas i.e. 181 (54.7%). 62.8% (n= 208) mothers belonged to Hindu religion. Maximum of the subjects (n= 191, 57.7%) had normal BMI i.e. 18-24.9. Mean BMI was 24.36 ± 4.46. Majority of the subjects were vegetarian i.e. 216 out of 331 (65.3%). 22.4% study subjects were educated up to 12th (Intermediate). 94.3% i.e. 312 subjects were unemployed or house-wives. Majority of the study subjects i.e. 34.1% belonged to upper lower socio-economic class, with men socio-economic score of 14.43 ± 5.62. Majority of the study subjects (n= 248, 74.9%) belonged to joint family. In maximum of the subjects i.e. 148 (44.7%) period of gestation at the time of enrolment was above 24+1 weeks.

The prevalence of anaemia was 36.3% i.e. 120 subjects out of 331 study subjects. Only 2 (0.6%) of the subjects were having severe

anaemia, 43 (13.0%) had moderate and maximum of the subjects i.e. 75 (22.7%) had mild anaemia as shown in figure.1. The mean haemoglobin level of the study subjects was 11.28 ± 1.43.
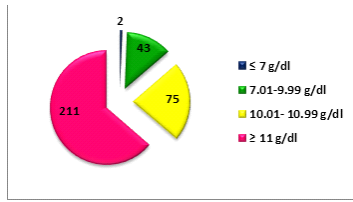

FIGURE.1- HAEMOGLOBIN LEVEL OF THE STUDY SUBJECTS

Out of 120 (36.3%) subjects, in whom anaemia was prevalent; iron-deficiency anaemia was the most common type of anaemia present in 67 study subjects i.e. 55.8 %. Dual deficiency (iron and Vitamin B12) anaemia was prevalent in 52 (43.4%) of the study subjects. In only one subject (0.8%), Vitamin B12- folate deficiency anaemia was prevalent as depicted in figure.2.
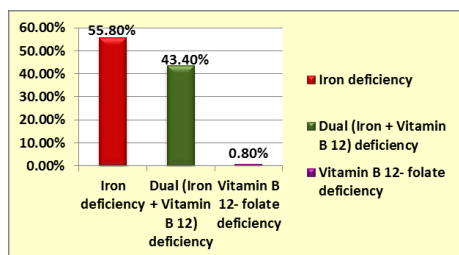

FIGURE.2. TYPE OF ANAEMIA PREVALENT AMONG STUDY SUBJECTS

There was a significant association between the haemoglobin level with the age of the study subjects, residence, dietary habits, attending pre-conception counselling, education, type of family, socio-economic class score and period of gestation at the 0.05 level of significance. There was no association between the prevalence of anaemia and religion, BMI and occupation of the study subjects.

Calculation of nutritional intake by using 24- hour recall method and diet calculation reveals that maximum of the subject's daily energy intake was between 1501- 2000 kcal/day i.e. of 120 (36.3%) subjects with mean of 1610.54 ± 541.24. The carbohydrate intake of majority of the subjects i.e. 158 (47.7%) was between 201-300 g/day. 42.9% subjects had 40.1- 60 g protein intake per day. Out of 331 subjects, 208 subjects i.e. 62.8% had < 50 g fat intake each day. 63.4% (n= 210) subjects had Vitamin C intake of < 40 mg / day. Iron intake of 216 (65.3%) multigravida antenatal women was between 10.1-20 mg per day. Only 2 (0.6%) subjects took > 500 µg folic acid per day. Only 7 (2.1%) subjects had Vitamin B12 intake more than 1.4 µg/ day with mean of 0.84 ± 2.84. Nutrient intake of the study subjects is shown in table.2. There was no significant difference found between the nutrient intakes of anaemic and non- anaemic study subject groups as shown in table.1. This shows that there is no impact of nutrient intake on the anaemic status of the study subjects.

Table.1. Daily nutrient intake of the study subjects and Comparison of mean nutrient intake between the anaemic and non- anaemic subjects
N=331

Nutrient Intake	f (%)	Mean ±S.D	p value at df= 329, p< 0.05 level of significance	t- value
1.Energy (kcal) a.≤ 1000 b.1001-1500 c.1501- 2000 d.2001- 2500 e.≥2501	42(12.7) 97(29.3) 120(36.3) 57 (17.2) 15 (4.5)	1610.54 ± 541. 24	0.894 NS	0.133
2.Carbohydrates (gram) a.≤ 100 b.101-200 c.201- 300 d.≥ 301	08 (2.4) 97 (29.3) 158 (47.7) 68 (20.5)	244.03 ± 97.1	0.305 NS	1.027
3.Proteins (gram) a.≤ 20 b.20.1- 40 c.40.1- 60 d.≥ 60.1	07 (2.1) 111 (33.5) 142 (42.9) 71 (21.5)	50.52 ± 2.91	0.705 NS	0.379
4.Fats (gram) a.< 50 b.51-100 c.>101	208 (62.8) 112 (33.8) 11 (3.4)	47.98 ± 2.89	0.333NS	0.970
5.Vitamin C (mg) a.< 40 b.41-80 c.81-120 d.>121	210 (63.4) 65 (19.6) 23 (6.9) 33 (10.0)	51.03 ± 8.16	0.954 NS	-0.058
6.Iron (mg) a.≤ 10 b.10.1- 20 c.20.1-30 d.≥ 30.1	83 (25.1) 216 (65.3) 18 (5.4) 14 (4.2)	18.47 ± 7.08	0.776 NS	0.285
7.Folic acid (µg) a.≤500 b.≥ 501	329 (99.4) 02 (0.6)	53.22 ± 2.85	0.679 NS	-0.414
8.Vitamin B12 (µg) a.≤ 1.3 b.1.4- 2.7	324 (97.9) 07 (2.1)	0.84 ± 2.84	0.832 NS	-0.212

NS- NOT SIGNIFICANT

The risk factors of anaemia were present in few subjects. The main risk factors present among the subjects were history of abortion in 138 i.e. 41.7% subjects, fatigue in 223 (67.4%) and weakness among 220 (66.5%) study subjects. Nausea was present in 82 (24.8%), excessive vomiting in 47 (14.2%) subjects and abdominal distension was prevalent in 43 i.e. 13% of the study subjects. Non- availability of food, blood in urine and vaginal bleeding was not reported by any of the subject. The risk factors of anaemia present among the study subjects are depicted in table.2. There was significant association between many risk factors with the anaemic profile of the study subjects except for abortion and the surgery at the 0.05 level of significance as shown in table.2.

TABLE.2. RISK FACTORS OF ANAEMIA AND ASSOCIATION BETWEEN THE RISK FACTORS WITH THE ANAEMIC PROFILE N= 331

Risk factors	Present f (%)	Chi- square Value at df =1 Table value= 3.84
Worm infestation	02 (0.6)	323.04*S
Defecation in open	01 (0.3)	327.01*S
Bleeding in stool	01(0.3)	327.01*S
Excessive menses	08 (2.4)	299.77*S
Clots in menses	08 (2.4)	615.03*S
Menses > 7 days	04 (1.2)	315.19*S
History of abortion	138 (41.7)	1.45 NS
History of dilatation & Curettage	49 (14.8)	164.01*S
History of any surgery	31 (9.4)	7.64 NS
Taking tea with meals	54 (16.3)	150.24*S
Includes green vegetables in diet	324 (97.9)	303.59*S
Includes fruits in diet	319 (96.4)	284.74*S
Any food allergy	04 (1.2)	1284.30*S
Nausea	82 (24.8)	84.26*S
Excessive vomiting	47 (14.2)	169.69*S
Abdominal distension	43 (13.0)	181.34*S
Indigestion	31 (9.4)	218.61*S
Taking Iron supplements	279 (84.3)	398.09*S
Washing hands before and after meals	330 (99.7)	650.05*S

*S- SIGNIFICANT, NS- NOT SIGNIFICANT

DISCUSSION

Maintaining good nutrition and a healthy diet during pregnancy is critical for health of the mother and unborn child. During pregnancy there is a disproportionate increase in plasma volume, RBC volume and haemoglobin mass. Approximately, 85% pregnant women have anaemia.

The results of the present study revealed the prevalence of anaemia as 36.3% i.e in 120 out of 331 study subjects. The present finding shows iron deficiency anaemia was the most common type of anaemia present in 67 study subjects i.e. 55.8 %. The outcomes of the study depicts that maximum of the subjects i.e. 75 (22.7%) had mild anaemia and the findings are consistent with the results of a cross-sectional study revealed moderate prevalence of anaemia among the pregnant women.[6]

The result of multivariable analysis of a cross-sectional study revealed the likelihood of anaemia higher among pregnant women living in rural areas, had no latrine, low monthly income, five or above parity, nutritional status assessed by mid upper arm circumference (MUAC < 23 cm) and didn't take prenatal iron supplementation.[7]

The findings of the present study also shows a significant association between the prevalence of anaemia with residence and socio-economic class score, age of the study subjects, dietary habits, education and period of gestation. The findings of a similar study reveal highly significant factors associated with anaemia were mother's age, education, socio-economic status, parity and dietary habits.[8]

The main risk factors present among the subjects were history of abortion in 138 i.e. 41.7% and other risk factors are history of abortion, fatigue, weakness, nausea, vomiting and abdominal distension respectively.

CONCLUSION

In developing countries anaemia is a cause of serious concern as, besides many other adverse effects on the mother and the foetus it contributes significantly to high maternal and foetal morbidity and mortality. As, the highest risk factor of anaemia in this study is being abortion, safe management of abortion in to be addressed. There is a need to give greater emphasis on the nutritional and risk factor assessment of the pregnant women for anaemia so that steps to prevent complications of anaemia can be initiated at the earliest. In-service education programmes should be planned and implemented on evidence-based knowledge regarding prevention and early detection of anaemia. Nurses should engage in evidence- based nursing practice to take active initiative in the assessment of risk factors of anaemia and in the development of guidelines for the prevention and management of anaemia. Nurses need to engage in multi-disciplinary research so that it will help to improve their knowledge regarding anaemia, its prevention and management. They should take initiative to conduct research on various aspects of anaemia and its impact on health.

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