Original Research Article

Study of impact of anemia on pregnancy

Shradha S. Maka[1]*, Sangamesh B. Tondare[2], Mahesh B. Tondare[3]

[1]Department of Obstetrics and Gynecology, MRMC, Kalaburagi, Karnataka, India
[2]Department of General Surgery, GIMS, Kalaburagi, Karnataka, India
[3]Department of Community Medicine, BRIMS, Bidar, Karnataka, India

*Correspondence:
Dr. Shradha S. Maka,
E-mail: shradhasmaka@gmail.com

ABSTRACT

Background: Anemia during pregnancy is highly prevalent in developing countries like India. Mostly is nutritional, of which iron deficiency anemia is predominant. Pregnancy is a state of hemodilution, also there is increased requirement of iron and folic acid during pregnancy. The incidence varies with socioeconomic status, literacy. Anemia has adverse outcome on both mother and fetal health. Poor fetal outcome like increase in preterm deliveries, increase in intrauterine growth restriction, increase in NICU admission, intrauterine death is seen. Maternal complications increase with anemia. This study aims to study the prevalence, type of anemia and its effect on mother and fetus. Objective of present study were to investigate the type and degree of anemia and to study the maternal and perinatal outcome.
Methods: This study was done in department of obstetrics and gynecology in M. R. Medical college kalaburagi for 1 year. Study was conducted on 100 pregnant women. Haemoglobin estimation was done for all woman in 3rd trimester. Severity of anemia was detected by ICMR (Indian Council of Medical Research) classification. Depending on degree and type of anemia all were treated and followed up for maternal and perinatal outcome.
Results: The incidence of mild, moderate, severe anemia were 28%, 54%, 18% respectively. Most of the anemic woman belonged to low socioeceonomic status 84%. 16% had maternal complications. Poor perinatal outcome was seen in unbooked and referred cases.
Conclusions: Anemia continues to be a major problem in developing countries with poor maternal and neonatal outcome. Early diagnosis and treatment can improve both maternal and neonatal outcome.

Keywords: Anemia, Maternal outcome, Neonatal outcome, Pregnancy

INTRODUCTION

Anemia is one of the most important public health problem not only in India but also in most south east Asian countries. About 16-40% maternal deaths occur due to anemia. Anemia also increase maternal morbidity and mortality. Pregnancy increases the requirement of various health nutrients, iron and folic acid. Hemodilution during pregnancy aggravates anemia.

Along with physiological causes, social causes like early marriage, teenage pregnancy, decrease spacing between pregnancy, poor nutritional supplementation also contribute to anemia. Incidence of anemia during pregnancy in india ranges between 65-75%.[1]

In India NNACP was initiated to provide free iron and folic acid supplementation to pregnant woman from second trimester to three months postpartum. ICMR data shows 84.2% anemia prevalence in rural pregnant women, of which 13.1% were severe anemia.[2]

In India 26.3% of pregnant woman have institutional deliveries, have minimal number of visits to nearest

antenatal clinic.[3] If anemia detected earlier the hazards of parentral iron therapy and blood transfusion can be avoided.[4]

Anemia the most preventable cause of maternal mortality should be eradicated from the female population in the coming years, that will ensure better maternal and perinatal health. Hence need for this study is to know the complications and to counsel women to prevent further obstetrical complications. Objective of present study were to investigate the type and degree of anemia and to study the maternal and perinatal outcome.

METHODS

This study was conducted in the Department of Obstetrics and Gynecology, M. R. Medical College Kalaburagi, Karnataka, India for 1 year, from July 2015- 2016. A prospective randomized study was conducted on pregnant women in 3rd trimester attending OPD as well as IPD of OBG Department of M. R. Medical College Kalaburagi. Sample size was 100 antenatal cases attending OPD and IPD.

Inclusion criteria

- All women attending OPD and IPD in third trimester with haemoglobin of <10.9gm/dl.

Exclusion criteria

- All women whose haemoglobin was more than 11gm/dl.
- Patients with First and second trimester pregnancy were not included.

All the patients were studied in detail regarding age, literacy, socio eceonomic status, parity, interval between pregnancy, menstrual history, any significant past history. General physical examination, systemic examination, obstetric examination was done. Data was collected during their visit in 3rd trimester.

Following investigations were done

- Haemoglobin estimation- by Sahli's method.
- Complete blood picture.
- Blood group and Rh typing
- Peripheral smear- the type of anemia was studied by peripheral smear examination.
- Obstetric scan.

Anemia was classified according to Indian council of Medical Research criteria (ICMR).

- Mild anemia-10-10.9gm/dl
- Moderate anemia-7.1-10gm/dl
- Severe anemia- <7 gm/dl

According to degree of anemia all the subjects were treated with either oral or intravenous iron or blood transfusion and followed up during antepartum, intrapartum and postpartum period. Mean and Standard deviation was used.

RESULTS

Most common age group was 19-24 years (47%), followed by 25-29 years (34%). Many of the cases belonged to low socioeconomic status (84%). 63% of the cases were multigravida, 37% were primigravida.

Table 1: Distribution of cases according to age.

Age group in years	No. of cases	Percentage
<19	11	11
19-24	47	47
25-29	34	34
>30	8	8
Total	100	100

Table 2: Distribution of cases according to symptoms.

Symptoms	No. of cases	Percentage
Asymptomatic	19	19
Fatigability	77	77
Pedal oedema	62	62
Dyspnoea/palpitation	25	25
Headache	12	12
Giddiness	1	1
Loss of appetite	20	20

19% were asymptomatic. Majority of women presented with fatigability (77%) and pedal oedema (62%), dyspnoea was seen in 25 cases, 12 cases presented with headache, giddiness in 1%.

Table 3: Distribution of cases according to severity of anemia.

Severity	No. of cases (n=100)	Percentage
Mild	28	28
Moderate	54	54
Severe	18	18

Most of the women had moderate anemia (54%), 28% presented with mild anemia, 18% had severe anemia. Severity of anemia was classified as ICMR classification.

Table 4: Distribution of cases according to peripheral smear study.

Peripheral smear	No of cases (n=100)	Percentage
Dimorphic	18	18
Microcytic hypochromic	82	82

Peripheral smear study showed microcytic hypochromic anemia in majority of cases (82%), dimorphic anemia on peripheral smear study was seen in 18%.

Table 5: Distribution of cases according to treatment.

Treatment	No. of cases	Percentage
Oral iron	91	91
Parentral iron	52	52
Blood transfusion	18	18

Oral iron was given in 91%. 52% of the cases were given parentral iron. Blood transfusion was done in 18% cases. Among the blood transfused patients, all the patients were transfused packed cell.

Table 6: Distribution of cases according to maternal complications.

Maternal complications	No. of cases	Percentage
Absent	84	84
Present	16	16
PPH	4	4
Sepsis	2	2
Postpartum fever	9	9
Congestive cardiac failure	1	1
Total	100	100

84% had no complications. Maternal complication was seen in 16 cases, of which postpartum fever was most common, seen in 9 cases, followed by PPH in 4 cases, sepsis in 2 cases and congestive cardiac failure in 1%.

Table 7: Distribution of cases according to fetal outcome.

Fetal outcome		No. of cases
Preterm	Yes	20
	No	80
IUGR	Yes	28
	No	72
NICU	Yes	25
	No	75
IUD	Yes	3
	No	97

20% of the women had preterm delivery. 28% of the babies were IUGR, NICU admission was seen in 25% cases. Intrauterine death was seen in 3 cases.

DISCUSSION

In the present study, 28% mild, 54% moderate and 18% were severely anemic. Majority of the anemia cases belonged to age group of 20-24 years (47%). This was comparable to Alli R et al.[5] Low socioeconomic status predisposes to anemia, poor nutrition being the leading cause of anemia. In the present study, 82% belonged to low socioeconomic group while 100% of women of the study Alli R et al belonged to low socioenomic status. In Rangnekar et al 67% of women belonged to low socioeconomic group.[6] In the present study 53% were booked, 30% were unbooked and 18% were referred cases. 74% had severe anemia in unbooked and referred cases, this was comparable with Awasthi A et al (83.5%).[7]

In the present 63% were multigravida, comparable with Awasthi A et al (65.5%).[7] In the present study spacing between pregnancy <2 years was 61% and >2 years is 39%, comparable to Khandait DW et al, 55.9% and 44.1% respectively.[8] In the present study microcytic hypochromic anemia was most common (82%) followed by dimorphic anemia (18%). Which is comparable to Awasthi A et al (66.5%).[7] In the present study 91% required oral iron, 52% required parentral iron and 18% blood transfusion. The requirement of blood transfusion was more in referred and unbooked cases. Preterm deliveries 20% and IUD 3% were comparable with study of Sarin AR, who observed that 31.2% women had preterm deliveries.[9] Maternal complications like postpartum febrile illness (9%), postpartum haemorrhage (4%), sepsis (2%), and congestive cardiac failure (1%) was seen which was comparable to Awasthi A et al postpartum febrile illness (14.1%).[7] PPH (7.5%) and puerperal sepsis (3.5%). Fetal outcome in the form of preterm (20%). IUGR (28%), NICU Admission (25%) and IUD (3%) were seen which was comparable to to Awasthi A et al preterm (9.5%), IUGR (37.5%), IUD (8%) and also with Rangnekar et al (73%, 4%, 16% respectively).[6,7] Incidence of low birth weight babies in the present study was 46% which was comparable to Khalida H et al.[10]

CONCLUSION

Anemia is the commonest medical disorder in pregnancy and is a very common problem in developing countries. It constitutes significantly to maternal morbidity and mortality. About 60-80% of pregnant woman have anemia and it contributes to 40% of maternal death. It also contributes to indirect death in the form of PPH, infection, cardiac failure. Anemia is also responsible for poor fetal outcome in the form of spontaneous abortion, preterm deliveries, low birth weight and intra uterine growth restriction. Among various causes of anemia, 90% are nutritional in origin, iron deficiency is the commonest.

Therefore, efforts should be done not only to correct anemia but also to prevent. Attention should be paid to menstrual problems, this is possible with better awareness and education of females in society. Delivery of anemic patients should be preferably done in a institute with ICU and blood bank facility.

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

REFERENCES

1. De Mayer EM, Tegman A. Prevalance of anemia in the World. World Health Organ Qlty. 1998;38:302-16.
2. Indian Council of Medical Research. Evaluation of the National Nutritional Anemia Prophylaxis Programme. An ICMR Task Force Study. New Delhi ICMR; 1989.
3. SRS Sample registration system RGI, New Delhi. Maternal Mortality in India: 1997-2003: Trends, causes and Risk factors. Available at www.health.mp.gov.in/Maternal_Mortality_in_India_1997-2003.
4. Bhatt RV. Management of Pregnancy anaemia: Obstetrician's dilemma. J Obstet Gynecol India. 1998 Dec;48(6):96-100.
5. Alli R, Satyanarayana M. Anemia complicating pregnancy. J Obstet Gynecol India. 1985;35(2):335-8.
6. Rangnekar AG, Rashmi D. Fetal outcome in pregnancy anemia. J Obstet Gynecol India. 1993 April;43(2):172-6.
7. Awasthi A, Thakur R, Dave A. Maternal and perinatal outcome in cases of Moderate and severe anemia. J Obstet Gynecol India. 2001 Dec;51(6):62-65.
8. Khandait DW, Ambadikar NN, Zodpey PS. Risk factors for anemia in Pregnancy. J Obstet Gynecol India. 2001 Jan-Feb;51(1):42-44.
9. Sarin AR. Severe anemia of Pregnancy: Recent experience. Int J Gynecol Obstet India. 1997 July;1(1):39-44.
10. Khalida H, Shah GN, Farooq F. Some obstetric and fetal correlations in association with anemia in pregnancy. Indian J Maternal Child Health. 1997 April-June;8(2):48-50.