IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 17, Issue 4 Ver.2 April. (2018), PP 25-28
www.iosrjournals.org

Prevalence of anemia in pregnancy: A retrospective study at Tertiary care hospital in Jharkhand, India

ManjuMerina Bara[1], Manjula Srivastava[2], Annie Samuel[3]
[1](Associate professor, Department of Obstetrics&Gynecology, MGMMCH, Jamshedpur, Jharkhand)
[2](Assistant professor, Department of Obstetrics &Gynecology, MGMMCH, Jamshedpur, Jharkhand)
[3](Post Graduate Student, Department of obstetrics & Gynecology, MGMMCH, Jamshedpur, Jharkhand)

Abstract:
Objective:*Anemia in pregnancy is a major health problem with adverse maternal and foetal outcome worldwide specially, developing countries like India. The aim of the present study was to understand the prevalence of anemia among the pregnant women and its deleterious effects on pregnancy outcome.*
Material and Method:*This is a retrospective observational study done at a tertiary care hospital M.G.M. Medical College, Jamshedpur, Jharkhand over a period of one years from January 2017 to December 2017*
Result:*A high prevalence of anemia, 76% was observed among pregnant women. The current study shows 925 (20%) cases of mild anemia, 2011(44%) cases of moderate anemia , 1407 (31%) cases of severe anemia and 195(4.3%) cases of very severe anemia. The study shows that out of 5971 deliveries during the study period 1612 (35.3%) patients were severely anemic. There was 2995 (66%) unbooked cases and 2587(56%) wereprimigravidae. Majority of patients belonged to low socioeconomic group and of age below 24yrs. Maternal complications were preterm labour (44%), preeclampsia- eclampsia (51%), cardiacfailure (0.39%), PPH (2%), and maternaldeath (0.35%). Perinatal morbidity and mortality is also high in severe form of anemia.*
Conclusion:*Anemia in all form is associated with adverse maternal and perinatal complications. It is directly proportional to parity, less spacing between pregnancy, low socio-economic conditions and illiteracy. It is one of the preventable indirect cause of maternal mortality. Effective guidelines regarding girl child education, regular antenatal checkups, and regular intake of iron folic acid tab and availability of health facilities to rural population upto the grass root level might help in bringing down the prevalence.*
Key words*:Anemia, Maternal outcome,Perinatal outcome, Pregnant women,Rural health.*

Date of Submission: 26-03-2018 Date of acceptance: 09-04-2018

I. Introduction

Anemia is the major cause of maternal morbidity and mortality in developing countries.[1] According to WHO, prevalence of anemia among pregnant women in developed countries is about 14% ,whereas it is still as high as 51% in the developing countries.[2]India contributes to 80% of all global maternal deaths due to anemiaoccur in South Asian countries.[3] The prevalence of anemia during pregnancy in India is 87% which is quite high.[4,5]Ghimire and Ghimire from Nepal have found co-relation between severe anemia and poor perinatal outcome.[6]

WHO defines anemia hemoglobin less than 11gm/dl in first trimester and third trimester and less than 10.5gm/dl in second trimester .Anemia is further classified into mild, moderate and severe by ICMR depending upon the level of hemoglobin.

- Mild Hb%-10-10.9gm%
- Moderate Hb%-7-10gm%
- Severe Hb% 4-7gm%
- Very severe: less than 4gm Hb%

Anemia has multifactorial etiology.[7]Nutritional anemia is more common , i.e. inhibitors of iron absorption, dietary deficiency of iron,folic acid and vit B12 .During pregnancy, foetal and placental growth and larger amount of circulatory blood leads to an increased demand for nutrients, especially iron and folic acid due to either younger age of marriage. Other factors are pregnancy iron deficiency, teenage pregnancy, lack of appropriate spacing between pregnancies, parasitic infestation (ex. malaria, hookworm), open defecation, poor environmental and personal hygiene.

Anemia during pregnancy can cause premature labour, postpartum hemorrhage , puerperal sepsis and thromboembolic phenomenon in the mother , and subsequently prematurity, IUGR& low birth weight in the neonates.[8]This study aimed to understand the prevalence of anemia in pregnant women coming to tertiary care hospital and its effect on pregnancy outcome.

II. Material and method

This is a retrospective observational study done at MGM Medical CollegeHospital,Jamshedpur, Jharkhand over one year period from January 2017- December 2017. MGM Medical College Hospital is a tertiary care center in Jharkhand which caters majority of rural population of East Singhbhum, West Singhbhum and border areas of West Bengal and Orissa.

Inclusion criteria

Women with singleton pregnancy after 28 weeks having anemia admitted in hospital in labour.

Exclusion criteria

Pregnant women with hemolytic anemia were excluded from the study. Pregnant women with anemia due to acute blood loss (APH) were excluded from the study .Pregnant women with medical disorders like hypertension, diabetes , cardiac disease were excluded.

Medical records of all patients were completed with maternal age ,parity ,antenatal check -up , gestational age, pre-eclampsia ,LBW, prematurity, NICU admission , foetal demise , PPH, maternal Intensive care , and maternal mortality.

III. Observation &Result

There are 7954 admissions in obstetrics department during the one year study period. Out of 5971 women delivered, 4538 anemic patients were taken as study group. The prevalence of anemia was found 76% among the patients who delivered in that period. The range of hemoglobin in present study group was in between 2gm% to 10gm%. Maximum patients had hemoglobin in the range of 7-10 gm%(65%) followed by (35 %) with hemoglobin<7gm%.
(Table-1).

Table-1: Types of anaemia and correlation with age

Age	**Mild**		**Moderate**		**Severe**		**Very severe**	
	N	%	N	%	N	%	N	%
<24 yrs n=2178	433	20%	740	34%	895	41%	110	5%
25-29 yrs n=1588	302	19%	800	52 %	422	27 %	64	4%
30& above yrs n=772	190	25%	471	61%	90	12%	21	3%
Total	925	20%	2011	44%	1407	31%	195	4.3%

The above table shows that mild (20%), moderate(34%), severe anemia(41%)and very severe anemia (5%) were more prevalent in age group of <24 years. Table -2 shows 2955(66%) Women were unbooked and 3993(88%) pregnant women were of low socio-economic group. In the present study,3721 (82%) pregnant women were coming from rural population and out of these2955(66%) were tribal women.

Table-2: Patient characteristics

No of patients(4538)	
Hb%	
7-10gm%	*2950(65%)*
4-7gm%	*1407(31%)*
2-4gm%	*181(4%)*
Age group	
<24	*2178(48%)*
25-29	*1588(35%)*
30 and above	*772(17%)*
Booking status	
Booked	*1543(34%)*
Unbooked	*2995(66%)*
Gestational status	
37-42	*2451(54%)*
34-37	*1089(24%)*
<34	*998(22%)*
Gravida	
1	*2587(56%)*
2-5	*1498(33%)*
5 and above	*499(11%)*
Rural/Urban	
Rural	*3721(82%)*
Urban	*817(18%)*
Tribal/Non-Tribal	
Tribal	*2995(66%)*
Non-Tribal	*1543(34%)*
Socio-economic status	

Low socio-economic	3993(88%)
Middle socio-economic	545(12%)

Table 3: Obstetrics outcome.

Mode of delivery	
Vaginal	3267(72%)
LSCS	1271(28%)

Out of 4538 women,2451 (54%) had presented in labour at term followed by1089 (24%) women in gestational age group of 34-37 weeks, 998(22%)women presented at less than 34 weeks of gestation.

Table 4: Maternal complications.

Pre-term labour	1997(44%)
IUGR	1815(42%)
Pre-eclampsia/Eclampsia	2314(51%)
IUFD	363(8%)
Post-operative wound sepsis/septicaemia	91(2%)
PPH	90(2%)
ICU admission	21(0.4%)
Cardiac failure	18(0.39%)
Maternal death	16(0.35%)

In the present study, majority of the pregnant patient had a vaginal delivery. Out of 4538, 1997 (44%) patients were came with preterm labour, 1815 (42 %) patients had intrauterine growth restriction, (51 %) presented with pre-eclampsia , 363 (8%) had foetal demise at the time of admission. 21 (0.4 %) pregnant women were needed ICU admission and 16 (0.35%) of unfortunate women died of cardiac failure.1134 (25 %) newborn were admitted to NICU.

IV. Discussion

Anemia during pregnancy is a major health problem especially in India due to many contributing factors like increased iron demand of body, increased appetite and other social factors and type of family. The present study revealed that prevalence of anemia is 76%.These findings are similar to the findings documented by National Family Health Survey-3 .In our study , we found a un usually high prevalence of anaemia (82 %) in rural area Which is similar to NFHS-3(2005-06). As the Jharkhand is a tribal state, majority of tribal women presented with different grade of anaemia in pregnancy and its complications. In present study anaemia in pregnancy is found 66 % among tribal women. SayeedUnisa et al found 74% of pregnant tribal women with anaemia.[9] This is due to pre-pregnant anemia (due to nutritional deficiency ,malaria and worm infestation), lac of regular antenatal visit, lac of transportation to health care service , poverty, illiteracy and social taboo. The geographical condition of Jharkhand makes this situation more difficult.

Low socio-economic conditions and illiteracy has direct impact on occurrence of anemia in pregnancy. 88% of anemic pregnant women belonged to lower socioeconomic status class. Noronha et al in their study conducted in Udupi found that 54.27% of pregnant women belonging to low socio-economic group.[10]The prevalence of anemia of 48% was observed in the under 24 years of age group which is comparable with study by Sharma et al .Early age of marriage and poor iron stores contributes to high prevalence in this age group. A prevalence of severe anemia and very severe anemia was higher in 66 % of unbooked cases which is similar observation with other authors as well.[11]The prevalence of anemia in booked cases is 34% which is due to non- compliance with iron therapy.

In present study maternal mortality due to anemiawas found high which was16 out of 24 in that period(67%).As this Medical College is a tertiary care hospital,all referred cases were admitted in late stage so that it is difficult to save their lives.As per the RGI-SRS report MMR of India for the year 2011-2013 is 167/100,000 live births.

Anemiais the direct or indirect causes of the maternal death in India.There is 8-10 fold increase in MMR when Hb% falls below 5gm/dl .Early detection and effective management of anemia in pregnancy can contribute substantially to reduction in maternal mortality .the most common outcome was newborn of low birth weight followed by preterm delivery .The risk of the preterm delivery was more common in severely and very anemic group from 40% to 70% which was observed in several studies.

V. Conclusion

There is a significantly high prevalence of anemia among pregnant women in MGMMCH, Jamshedpur,India.A high prevalence in developing countries is an indicator that a more aggressive approach is warranted at all levels of healthcare in managing this problem .It is highly recommended that more effective guidelinesregarding

educating girl child screening programme, awareness campaign, frequent visits by anganwadi workers to pregnant women, early ANC booking, regular iron folic acid tablets intake, birth control for proper spacing,deworming of such patients. Such measures surely helps to reduce the burden of anemia among pregnant women in our country.

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ManjuMerina Bara "Prevalence of anemia in pregnancy: A retrospective study at Tertiary care hospital in Jharkhand, India"."IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 4, 2018, pp25-28.