Research Article

Impact of socio demographic factors on the severity of maternal anaemia

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ABSTRACT

Background: Anaemia in pregnancy is still a global problem and one of the leading causes for maternal mortality and morbidity in most of the developing countries. The aim and objective of the study was to know the role of various sociodemographic factors and its association with maternal anaemia.

Methods: This is a retrospective observational study at a Community Health Centre in Chamarajanagar District. For the study purpose WHO categorization of severity of anaemia was used. All the delivered patients were divided into mild, moderate or severe degree of anaemia based on their hemoglobin (Hb%) levels at the time of delivery and the impact of the sociodemographic factors on the degree of anaemia was expressed as the percentage of severity.

Results: A total of 1270 cases were included in the study out of which 270 (21.3%) of pregnant women had a normal hemoglobin level and 503 (39.6%) parturient were mildly anaemic, 460 (36.2%) with moderately anaemic and 2.9% (n=37) were severely anaemic. Patients who had an interpregnancy interval of >2 years, 60 % had normal Hb% and only 1.6% were severely anaemic. Moderate and severe anaemia was found more in women who were illiterates and an education level of less than high school level.

Conclusions: Anaemia in pregnancy is associated with several social and demographic factors. Strategies must be taken from the conceptional level itself by providing proper antenatal counseling and women should be economically empowered and good antenatal care must be made available and accessible to all of them. Even with routine iron prophylaxis in pregnancy, still the prevalence of anaemia is high, so should we consider one or two doses of routine parenteral iron therapy for all pregnant women?

Keywords: Anaemia, Pregnancy, Iron prophylaxis in pregnancy, Parenteral iron, Antenatal care, Preconceptional counseling

INTRODUCTION

Anaemia in pregnancy is still a global problem and one of the leading causes for maternal mortality and morbidity in most of the developing countries.[1,2]

Poor nutritional status during pregnancy is one of the common causes for maternal anaemia and is considered as risk factors for poor pregnancy outcomes and can result in life threatening complication in both mother and the fetus[2]. Haemoglobin level of <11 g/dl is defined as anaemia by the World Health Organization.[3]

Various studies done in the developing countries have shown that iron deficiency anaemia is highly prevalent among pregnant women and continues to be a worldwide concern affecting more than two billion people in both developed and developing countries and the highest prevalence is seen in South East Asian women.[4]

Need for the study

Various nutritional programmes have been advocated from the government and despite the use of iron and folic acid supplementation, the prevalence of anaemia is quite

high which shows that various other factors might be contributing to it. So this study was intended to know the role of various socio demographic factors and its association with maternal anaemia.

The aim and objective of the study was to know the role of various sociodemographic factors and its association with maternal anaemia.

METHODS

A retrospective observational study was conducted between January 2014 to December 2014 at the Community Health Centre (CHC), Santhemaralli, Chamarajanagar District after the necessary ethical approval.

Inclusion criteria

All pregnant women delivering at Santhemarahalli CHC during the study period.

Exclusion criteria

Pregnant women who were referred to higher centre for further management for any reason.

Methodology

The socio demographic data regarding the patients delivering at the CHC was noted form the parturition register. The variables considered are the age of the patient, parity, age at first pregnancy, interpregnancy interval, and education of the patient and husband, her

booking status of the pregnancy (a pregnant woman was considered as a booked case if she had at least 3 antenatal vistis, one in each trimester) and her haemoglobin level. For the study purpose the WHO categorization of the severity of anaemia was used.[3]

- Hemoglobin level of >11g% was considered normal.
- Mild anaemia – Hb% between 10g%-10.9%.
- Moderate anaemia – Hb% between 7-9.9g%.
- Severe anaemia –Hb% <7g%.

All the delivered patients were divided into the above mentioned categories based on their haemoglobin level at the time of delivery and the impact of the socio demographic factors on the degree of anaemia was expressed as the percentage of severity.

RESULTS

A total of 1270 cases were included in the study out of which the total anaemic population was 1000 with 78.7%, 270 (21.3%) pregnant women had a normal haemoglobin level and 503 (39.6%) patients were mildly anaemic, 460 (36.2%) parturients were moderately anaemic and 2.9% (n=37) patients were severely anaemic.

274 teenage pregnancies were noted (21.5%) and out of which 163 (59.4%) were primigravida. Only 30 patients (11%) with teenage pregnancy had a normal haemoglobin level. Out of 37 patients with severe anaemia 51.3% (n=19) were teenage pregnancies.

6.7% of unbooked cases were severely anaemia whereas only 1.7% of booked cases had severe anaemia (Table 1).

Table 1: Distribution of cases according to severity, age and booking status.

	Severity of anaemia				Total
	Normal n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	
Total cases	270(21.3)	503(47.5)	460(36.2)	37(2.9)	1270
Age in years					
17-19	30(11)	94(34.3)	131(47.8)	19(6.9)	274
20-25	92(22.2)	162(39.1)	151(36.5)	9(2.2)	414
26-30	104(21.1)	217(44.1)	166(33.8)	5(1.0)	492
>30	44(48.8)	30(33.3)	12(13.4)	4(4.5)	90
Booking status					
Booked	229(22.5)	411(40.4)	357(35.2)	20(1.9)	1017(80)
Unbooked	41(16.3)	92(36.3)	103(40.7)	17(6.7)	253(20)

Among primi and second gravidas mild anaemia was common (38.8 and 46.4% respectively) and moderate anaemia was seen more in women who were pregnant for the third and fourth time or more (39 and 45.7% respectively).

Women who conceived for the first time below the age of 19 years, 43% of them were moderately anaemic and

45.7% of patients with mild anaemia conceived for the first time between 20-25 years. The percentage of severe anaemia was almost equal in patients with age at first pregnancy <19 years and >30 years (Table 2).

Patients who had an interpregnancy interval of >2 years 60% of patients had normal haemoglobin percentage and

only 1.6% were severely anaemic whereas patients with an interpregnancy interval of <6months, only 12% of them were not anaemic and 11% of patients were severely anaemic (Table 3).

Table 2: Relation between parity and age at 1st pregnancy with severity of anaemia.

	Severity of anaemia				Total
Parity	Normal n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	
Primi	74(27.8)	103(38.8)	78(29.3)	11(4.1)	266
Gravida 2	96(16.1)	277(46.4)	214(36)	9(1.5)	596
Gravida 3	77(27.5)	81(29)	109(39)	12(4.5)	279
Gravida 4 and above	23(17.8)	42(32.6)	59(45.7)	5(3.9)	129
Age at 1st pregnancy					
<19yrs	94(22.5)	123(29.5)	180(43)	21(5)	418
20-25 yrs	122(18.4)	302(45.7)	229(34.6)	7(1.3)	660
26-30 yrs	51(30.2)	67(39.6)	44(26)	7(4.2)	169
>30 yrs	13(39.3)	11(33)	7(21.1)	2(6.6)	33

Table 3: Relation between inter-pregnancy interval and severity of anaemia.

	Severity of anaemia				Total
Interpregnancy interval (months)	Normal n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	
<6 months	12(12)	41(41)	36(36)	11(11)	100
6-12	31(5.8)	270(50.6)	223(41.9)	9(1.7)	533
12-24	80(32.1)	74(29.7)	91(36.6)	4(1.6)	249
>24	73(60)	15(12.2)	32(26.2)	2(1.6)	122

Table 4: Relation between education level and severity of anaemia.

	Severity of anaemia								Total	
Education level	Normal n (%)		Mild n (%)		Moderate n (%)		Severe n (%)			
	H	W	H	W	H	W	H	W	H	W
Illiterate	58 (19.6)	36 (18)	134 (45.3)	102 (51)	96 (32.4)	56 (28)	8 (2.7)	6 (3)	296	200
Primary schooling (1st-7th)	62 (16.7)	57 (18.1)	181 (49)	147 (46.6)	122 (33)	107 (33.4)	5 (1.3)	4 (1.3)	370	315
Secondary schooling (8th -10th)	79 (22.8)	66 (17.8)	102 (29.4)	122 (32.9)	163 (47)	174 (46.9)	3 (0.8)	9 (2.4)	347	371
Pre-universities	51 (38)	54 (23.4)	40 (30)	85 (37)	31 (23.1)	85 (37)	12 (9)	6 (2.6)	134	230
Universities	20 (16.3)	57 (37)	46 (37.4)	47 (30.5)	48 (39)	38 (24.6)	9 (7.3)	12 (7.7)	123	154

Normal haemoglobin levels were found more in women who have completed universities (37%) and husbands who have finished pre-universities (38%) on the contrary even severe anaemia was more prevalent in women with universities (7.7%) and husbands with pre-university education (9%) (Table 4).

DISCUSSION

The prevalence of anaemia in pregnancy has been reported to be 59% in Bhutan, 65% in Nepal and 60% in Sri Lanka. In Bangladesh, the estimated prevalence of anaemia was 50%. Another study in Bangladesh reported that about 40% of pregnant women were anaemic. Therefore; it indicates that a large variation in anaemia prevalence exists between countries and possibly within a country.[5]

A study done in Aurangabad, India reported the prevalence of mild, moderate, severe anemia as 24.7%, 54.5%, and 7.9%, respectively. Thus the prevalence of moderate anemia was high in comparison to the other degrees of anemia in that study and we noted mild anaemia (39.6%) to be more in our study.[6]

An Indian study reported that anemia was maximum (93.7%) in the age group 30 years and above followed by the age group below 20 years (88.3%).[6] Our study also showed that the incidence of anaemia was more in teenage pregnancies (89%). In the adolescent period the nutritional requirement of the girl will be high and if she becomes pregnant at that time the requirement doubles, and if it is not taken care properly invariably she will become anaemic, this can be explained for an increase in the incidence of anaemia amongst women between the age group of 17-19 years, 94 (34.33%) patients were mildly anaemic, 131 (47.8%) with moderate anaemia and 19 (6.9%) with severe anaemia.In a study from Maharashtra it was noted that 59 anaemic pregnant women were in the age group of 20-24 years in which 79.66%, 13.55% and 6.77% had moderate, mild and severe anaemia respectively.[7] Regular antenatal follow-up is essential for a better obstetric care as the cases will be screened earlier for high risk factors and will be treated accordingly. In our study the number of severe anaemia was less in booked cases compared to unbooked cases.

It was noted that 40% of the patients were anaemic with 2 years of spacing, 67.9% with 1-2 years spacing, 94.2% were anaemic with less than one year of spacing, so it is very evident that as the spacing decreases the percentage of anaemia also increases. Our study was in consistent with another study which reported 53.78% anaemic patients with a spacing of one year and 42.86% after spacing of 2 years.[7] Due to less body iron stores and micronutrient deficiency which are the main responsible factors for anemia in pregnancy, the prevalence of anemia is more in those who have repeated pregnancies with less spacing interval.

There are studies which have reported that the severity of anaemia decreases as the education level increases, but we did not find any such association with education and the degree of anaemia.[6,7] So it can be better said that not just the formal education which is important, instead the women should receive proper antenatal counselling at the first booking itself, preferably in preconceptional period so that many complications which can occur in a high risk mother can be prevented.

CONCLUSIONS

The cause of anaemia in pregnancy and their frequency are dependent on multiple factors such as geography, ethnicity, nutritional status, pre-existing iron status and prenatal iron supplementation, so treating anaemia should start at the conceptional level itself by giving iron prophylaxis for adolescent girls to avoid having anaemic mothers in the beginning of their conception, treating anaemic mothers so that the child is born with adequate iron stores, care of the girl child, proper nutritional supplementation in infancy and childhood by educating the mother and the society as a whole and women should be economically empowered and good antenatal care must be made available and accessible to all of them. Even with routine iron prophylaxis in pregnancy, still the prevalence of anaemia is high, so should we consider one or two doses of routine parenteral iron therapy for all pregnant women? A question which needs to be answered in future by larger studies.

Limitations

It is a retrospective study in which data was taken from the parturition register and the study was undertaken at a community health centre and severely anaemic patients with haemoglobin value of <5g% were referred to a higher centre as they needed more intensive monitoring and need of blood products anytime. So the calculated percentages do not include those cases and the magnitude of the problem increases if those cases were included.

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