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PREVALENCE OF ANEMIA AMONG PREGNANT WOMEN IN PRIMARY HEALTH CENTRE AT ANKALAGI: A RETROSPECTIVE STUDY

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ABSTRACT **Introduction:** Low level of haemoglobin during pregnancy has been associated with many adverse effects to both maternal & fetal outcomes like low birth weight, preterm, abortions, still born and many more. Since the study was not done regarding prevalence of anemia among pregnant women at PHC Ankalagi, Belagavi, the study was undertaken.

Objective: To estimate the prevalence of anemia among pregnant women and to determine the anemic status based on maternal age group, BMI & parity index.

Methodology: A retrospective study was done from 2017 April to May 2020 April for a period of three years at PHC, Ankalagi, Belagavi. Over 718 pregnant women were enrolled. Regular ANC was done. Data was collected on Maternal Age, Body mass Index (BMI), Number of parity and Socio-economic determinants. A hemoglobin level was done for all trimesters. Hemoglobin levels were estimated by Sahil's hemoglobinometer method.

Results: Mean age was 18±39 yrs. Prevalence of anemia among pregnant women was 60.30%. Nearly 347(48.32%) were mild anemic (Hb: 9-10.9g/L), 84(11.69%) were moderately anemic(Hb :7-8.9g/L) & 8(1.11%)were severe anemic (Hb :<7g/L). Increased anemic prevalence showed in the maternal age group between 31-35years (96%) and in group of underweight of about 84% and in the parity with gravid 6&7 (100%).

Conclusion: High prevalence of anemia was found at PHC Ankalagi & more prevalent showed in the age group between 31-35years & with underweight category & with parity index 6&7 respectively, which is an indicator of poor nutritional status and health care utilisation. It is one of the preventable causes which can decrease the maternal & fetal mortality. Should reinforce the health education from adolescent girls, with regular antenatal check up and active participation of ASHA workers.

KEYWORDS : Anemia, BMI, Pregnancy, Hemoglobin, Iron deficiency Anemia, Prevalence

INTRODUCTION

Haemoglobin, a hemoprotein whose primary function is to transport the oxygen to the body tissues[1]. During pregnancy due to hemodilution, many women suffer from anemia. Anemia impairs the capacity of blood transport to cells which is indicator for poor nutrition & health[2]. Most common form of anemia is iron deficiency, it is estimated that approximately 50% is attributable to iron deficiency anemia[3,4,5,6].

Many studies have shown that pregnant women suffering from IDA, they are more prone for risk factors like abortion, preterm delivery, baby with low birth weight, increased perinatal & neonatal mortality[7-9]. Negative iron balance may due to increased needs during pregnancy, inadequate intake or decreased absorption or increased iron losses during menstruation, hookworm or malarial infections[10]. World health organisations (WHO) recommends intermittent supply of iron and folic acid to menstruating females where the prevalence is 20% or more and daily intake of iron &folic acid to pregnant women in order to prevent anemia during pregnancy[11]. Despite efforts are being made to reduce the burden of anemia, the prevalence is more in developing countries. Currently, in India prevalence is about 69%, since there is no epidemiological data in ankalgi PHC, Belagavi, the study was undertaken to know the prevalence of anemia during pregnancy.

METHODLOGY

A retrospective study was done at Primary Health Centre (PHC), Ankalagi, Belgavi from April 2017 to May 2020 for a period of three years. Nearly 718 pregnant women were enrolled. Data was collected on Maternal Age, Pre-pregnancy weight, Height to calculate the Body Mass Index (BMI), Number of parity, BP &Socio-economic determinants which included- occupation, educational status, monthly income

BMI categories:

Pre-pregnancy BMI was calculated as the body weight within 3 months prior to pregnancy in kilograms divided by height in meters squared(kg/m2); the participants were categorized as follows : BMI<18.5kg/m2 – under weight; BMI 18.5-24 kg/m2 -normal weight; BMI 24- 28 kg/m2 -over weight; BMI >28kg/m2-obese.

Haemoglobin groups:

Further Anemia was classified according into WHO. Normal <11g/dl of haemoglobin; Mild anemia (9-10.9g/dl), Moderate anemia (7-8.9g/dl) and Severe anemia (<7.0g/dl). Haemoglobin levels estimation: venous blood samples were drawn from medial cubital vein and stored in tubes containing EDTA to prevent coagulation and estimated by Sahil's haemoglobinometer. Simple tabulation and proportions were calculated.

RESULTS

A total of 718 pregnant women were enrolled in the study at the PHC Ankalagi, Belagavi. Mean maternal age was 18±39 years. Nearly 41.78% were in the age between 20-25 years &least with >35 years of 1.25%. Most were housewife which showed 91.78% & 58.07% had only primary education. 51.25% had monthly income of about 5000-10000 (Table No.1).

Table No.1 Sociodemographic features of the study participants from april 2017 to may 2020

Sociodemographic factors	Number(%)
1. Age (years)	
<20	217 (30.22%)
20-25	300 (41.78%)
26-30	163 (22.7%)
31-35	29 (4%)
>35	9 (1.25%)
2. Occupation	
Housewife	659 (91.78%)
Government employee	07 (0.97%)
Private employee	05 (0.69%)
Farmer	17 (2.36%)
Merchant	03 (0.41%)
Daily labourer	27 (3.76%)
3. Educational status	
Unable to read and write	136 (18.94%)
Read and write	78 (10.86%)
Primary education	417 (58.07%)
Secondary education and above education	87 (12.11%)

4. Monthly income	
<2000	56 (7.79%)
2,001-5,000	294 (40.94%)
5,000-10,000	368 (51.25%)

Nearly 33.84% were underweight during pregnancy & 5.01% were overweight (Table No.2). Highest parity index were primigravida, gravida 2 followed by gravida 3 & gravida 4 i.e 37.46%, 31.89%, 19.35%, 8.4% (Table No.3)

Table No.2 Pre-pregnancy BMI status

B.M.I	Total number (%)
Underweight	243 (33.84%)
Normal	430 (59.88%)
Overweight	36 (5.01%)
Obese	09 (1.25%)

Table No.3 Parity index status

Parity	N(%)
Gravida 1	269(37.46%)
Gravida 2	229(31.89%)
Gravida 3	139(19.35%)
Gravida 4	61(8.4%)
Gravida 5	17(2.3%)
Gravida 6	2(0.2%)
Gravida 7	1(0.13%)

Prevalence of anemia among pregnant women was 60.30% in which 48.32% were mildly anemic, 11.69% were moderately anemic and 1.11% were severe anemic respectively. (Table No.4)

Table No.4 Hemoglobin levels and grades of anemia in pregnant mothers

Haemoglobin level(gm%)	Grades of anemia	N=718	%
>11	Non -anemic	285	39.69%
9-10.9	Mildly anemic	347	48.32%
7-8.9	Moderately anemic	84	11.69%
<7	Severely anemic	8	1.11%
	Total anemic	433	60.30%

Based on age categories anemia levels were enrolled, in which highest anemia showed in the age group between 31-25 years of about 96%, followed by 72.66%, 49.76% in the age group between 21-25years & <20 years respectively (Table No.6).

Table No.6 Number of anemic pregnant women based on age

Age	Total no of pregnant women	Total anemic pregnant women	%
<20	217	108	49.76%
21-25	300	218	72.66%
26-30	163	78	47%
31-35	29	28	96%
>35	9	04	44.4%

Highest anemia levels (84.36%) were shown in the underweight group of pregnant women. Nearly 38.33% were anemic in the overweight group, whereas obese group showed nearly 33.33% (Table No.7)

Table No.7 Number of anemic pregnant women based on B.M.I.

B.M.I	Total no. Of pregnant women	Total anemic pregnant women	%
Underweight	243	205	84.36%
Normal	430	190	44.18%
Overweight	36	21	38.33%
Obese	09	03	33.33%

Pregnant women with gravida 7 & gravida 5 were more prone for anemia in this retrospective study. Nearly 60.69% were anemic with gravida 2 & 55.76% were anemic in primigravida (Table No.8)

Table no.8 Number of anemic pregnant women based on Parity Index

Parity index	Total no.of pregnant women	Total no. Of anemic pregnant women	%
Primi gravida	269	150	55.76%
Gravida2	229	139	60.69%
Gravida3	139	81	58.27%
Gravida4	61	34	55.53%
Gravida5	17	17	100%
Gravida6	02	01	50%
Gravida7	01	01	100%

DISCUSSION

Anemia is one of the frequent complications during pregnancy. Due to physiological changes in pregnancy affects haemoglobin and there is relative or absolute reduction in haemoglobin concentration. The most common cause is iron deficiency which contributes nearly 75% and folate deficiencies. Due to decreased oxygen capacity carrying in tissues, has significant impact on both maternal & fetus like prematurity, post partum haemorrhage, spontaneous abortions, low birth weight and many more.

The present study was carried out to determine the prevalence and associated factors of anemia among pregnant women at PHC Ankalagi, Belagavi. The overall prevalence of anemia in this study was 60.30%. The similar study was found by Rajamouli J[12] et al showed prevalence of about 58.36% at Telagana. Another similar study done at rural Maharastra showed the prevalence of anemia among pregnant women of about 56.4%[13]. Similar reports from WHO[14] showed up nearly 56% of all women living in developing countries are anemic. Ranjana Singh[15] et al., where prevalence was quite high (81.95%) in Harpur, Uttar Pradesh. But in a longitudal observational study showed highest prevalence of anemia of about 98% in pregnant women in rural India done by Mishu Mangal[16] et al may due to patriarchial nature of society, discrimination against women, poverty, lack of knowledge, ignorance. According into NFHS -3 surveys, nearly 88% of women in Haryana, were vegetarians which could be one of the leading causes for iron deficiency anemia[17].

In this study, majority of anemic cases were of the mild type of about 48.32%, followed by cases of moderate anaemia of about 11.69% and 1.11% were severe anaemia. A similar report at Ethiopia stated 49% were of mild anemia and 5% were severe anemia[18].Whereas in contrast study in 2010 showed that majority had moderate anemia of about 50.9%, mild type was 30.17% & severe anemia was 18.9% respectively[19].

In present study, based on age, the anemic status was found more in group between 31-35 years of about 96%, followed by 72.66% found in 21-25years & 49.76% in less than 20years respectively. In a contrast study which is descriptive, done at tertiary center care, Hapur showed highest prevalent among 21-24 years, followed by 25-29 years[15]. Based on Body Mass Index, the anemia was found more in underweight group of about 84.36%. Whereas in group of overweight & obese showed about 38.33% & 33.33% respectively With respect to parity, the highest anemia showed in gravida 6&7. Due to repeated iron drain in multiparity & decreased spacing between pregnancies leads to the incidence of anemia during pregnancy[17]. Similar studies showed in Nigeria, Eastern Sudan & Zaire[21,22,23].

CONCLUSION

A high prevalence of anemia (60.30%) among pregnant women at rural area Ankalagi, Belagavi shows an indicator of poor nutritional status and improper health care utilisation. Programs should be focused on targeted population & should be implemented with active participation of locals. Along with that, the regular antenatal check-ups, supplements of iron & folic acid tablets, enriched with Vitamin C for better absorption, food fortification, cooking in iron utensils, awareness campaigns, frequent visits by anganwadi workers and birth control to decrease the spacing between pregnancies, and deworming the patients would reduce the prevalence of anemia & such measures in a long way improves both maternal & fetal outcomes.

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