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Study of Factors associated with anaemia in pregnant females belonging to rural Haryana

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ABSTRACT

Anemia is the most common nutritional deficiency disorder found in about 56% of all women living in developing countries as per World Health Organization. It is the second most common cause in India and is responsible for 20% of total maternal deaths. **Aims and Objectives:** To study the factors associated with anemia in pregnant females and To study the prevalence of anaemia in rural pregnant women. **Material and Methods**:538 participants were interviewed by using a pre- structured and pretested questionnaire including prime gravida, second gravida and> second gravida over a period of 1year from November 2015 to November 2016 in a tertiary care centre in district Sonipat, Haryana. Anaemia was classified as per the World Health Organization (WHO) grading criteria which is taken as 11g/dl anaemia in pregnancy which is further classified in to mild anaemia (haemoglobin 10-10.9 g/dl), moderate anaemia (haemoglobin7.0-9.9 g/dl) and severe anemia (haemoglobin <7 g/dL as per WHO. Purposive sampling technique was used to select the sample. **Inclusion criteria**: The study subjects of age< 20 years to 30 and > 30 years were included. the prevalence of anaemia was observed in all the three trimesters. **Exclusion criteria**: Females with history of recent blood transfusion, chronic renal disease and ante partum haemorrhage were excluded. The diagnosis of anemia was undertaken by peripheral blood smear examination and standard haemoglobin estimation by Sahli's method. **Results:** Among 538 subjects, the prevalence of anemia was found to be 58.48% classified in mild, moderate & severe categories. Mother's age, parity, education, socio-economic status, and dietary habits were found to be highly significant factors associated with maternal anemia. Other factors like family structure, size and attainment of menarche were found to be of least significance so far anemia is concerned **Conclusion**: High prevalence of anemia (59.3) calls for strict implementation of National Nutrition Anemia prophylaxis programme.

Key Words: Pregnancy, Anemia

Introduction

Anemia during pregnancy, particularly in developing countries is a significant public health problem throughout the world. Anemia is a condition in which the hemoglobin (Hb)content of the blood is lower than normal for a person´s age, gender and environment, resulting in the reduced oxygen carrying capacity of the blood[1,2].

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During the pregnancy, due to plasma expansion (maximum around 32 weeks), dilution of haemoglobin occurs. That is why,, haemoglobin level below 10gm/dl at any time during pregnancy is considered anaemia.. The main causes of anemia in developing countries include: inadequate intake and poor absorption of iron, tropical infections like malaria, hookworm infestation, diarrhoea, HIV/AIDS, closely spaced pregnancies., blood loss during labor, genetic disorders like, sickle cell anaemia and thalassemia India has the highest burden of anemia among pregnant women in whole southeast asia [3]. In other parts of Southeast Asia, the prevalence in Bangladesh was about 77% in 1981-82. Indonesia and

Nepal reported a prevalence of 63.5 and 65% respectively. It was 68% in Maldives, 60-70% in Sri-Lanka and 58% in Myanmar. Even though almost all parts of Southeast Asia have a high prevalence of anemia, the condition is worse in some rural areas especially in India. It may be due to differences in socio-cultural, economic and geographical conditions among these areas. The pregnant women suffering from Iron deficiency anemia usually have associated risk factors like preterm delivery, low birth weight babies , increased peri-natal and neonatal mortality. Intake of 100mg of elemental iron with 500 mcg folic acid tablets in second half of the pregnancy for a period of at least100 days has been recommended by The ministry of Health, Government of India., IDA is considered to be the third leading cause of disability adjusted life years lost for females aged 15–44years according to World Health Organization (WHO). In 1993, the World Health Organization introduced Safe Motherhood Initiative with a goal of reducing the number of maternal deaths by half [4]. The prevalence of anemia ranges from 33% to 89% in pregnant women and is more among adolescent girls with wide variations in different regions of country[5].In 1970, National Nutritional Anemia Prophylaxis Programme(NNAPP) was started in India, with the sole aim to reduce the prevalence of anemia to 25 percent. Since 1992, under Child Survival and Safe Motherhood (CSSM) Programme., the daily dosage of elemental iron for prophylaxis and therapy has been increased to 100 mg and 200 mg, respectively The present cross sectional study was designed to estimate the haemoglobin levels in pregnant women attending a tertiary care centre in rural sonepat which was found to be 58.60%. In developed countries ,anemia in pregnancy is prevalent in around 2-45% individuals. Globally, prevalence of anemia among pregnant women is 56% (WHO) and higher in developing countries (6-91%). In India, prevalence of anemia has been reported to be in the range of 32%-90%.

Statistical analysis

Data was analyzed using SPSS version 17.0 and chi square test for categorical data was used. P<0.05 was considered to be statistically significant.

Results

The total study subjects were 538 pregnant females. Among them, 318 pregnant women (59.30%)were found to have anemia and were classified in mild, moderate and severe groups. Table-1 reveals that 77.5% of pregnant women were 20-29 years of age group among participants. This result shows that among antenatal Cases, majority are in the age group below 30 years. Table-2. shows high prevalence of anaemia (96%) among housewives and agricultural labourers as compared to working females .(Chi.square test: 7.69&*P*< 0.021 (significant).Results indicate that agricultural labourers and housewives are underutilizing the heath care services providing prophylaxis doses of iron & folic acid (100 days) for prevention of anaemia.Table-3 showed that among the parity group ,majority of second gravidas (43%) suffered with anaemia. Thus it becomes clear that causes of anaemia like close pregnancies, malnutrition, not taking prophylactic doses of iron & folic acid tablets are the main reason for high prevalence of anaemia in second gravidas.

Table 1: Distribution of participants according to age

Age group	Number	Percentage (%)
<20years	118	22.2
20-24 years	318	59.3
25-29 years	98	18.2
≥30 years	4	0.3

Table 2: Distribution of Anemia in study group according to age, education & occupation

	Mild		Moderate		Severe		Total	
	N	%	N	%	N	%	N	%
Age(years)								
<20	36	11.5	46	14.7	6	2.0	88	28.2
20-24	64	20.3	101	31.9	16	5.1	181	57.3
25-29	24	7.5	16	5.1	6	2.0	46	14.6
≥30	0	0	0	0	0	0	0	0

Education								
Illiterate	64	20.4	70	22.1	12	3.9	146	46.3
Primary school	18	5.8	50	15.8	6	2	74	23.7
Secondary school	24	7.5	30	9.5	30	1.9	84	19.1
Graduate/PG	18	5.7	12	3.8	4	1.2	34	10.9
Occupation								
Housewife, agricultural working Women	124	39.4	156	49.6	24	7.6	304	96.7
Employed women	0	0	3	1.9	2	1.4	5	3.3

Group Severity OfAnemia

Table 3: Anemia distribution among parity

Parity	Normal	%	Mild	%	moderate	%	severe	%	total	%
Primi	176	32.9	48	8.9	31	11.5	10	1.89	60	38.3
Gravida 2	42	7.8	56	10.4	33	12.3	14	2.68	103	43.4
Gravida 3	6	1.11	20	3.72	17	6.3	2	0.76	39	18.7

Table 4: Prevalence of anemia among vegetarians & mixed diet

Diet	Normal	%	Mild	%	Moderate	%	severe	%	total	%
Mixed	100	18.6	40	7.40	48	8.9	10	1.8	98	18.22
Veg	124	23	122	22.7	76	14	18	3.4	216	40.24

Table-4 showed that vegetarian group suffered from high prevalence of anaemia (40.24%) as compared to those consuming mixed diet. This shows that readily available iron is absorbed better in mixed dietary groups as compared to vegetarian group.

Discussion

The prevalence of anaemia in pregnant women was found to be high (59.30%) among the 538 study subjects .A similar study conducted on pregnant women in rural Maharashtra, a prevalence of 56.4% was found. Similarly, reports from WHO reveals that up to 56% of all women living in developing countries are anaemic[6]In India, National Family Health Survey -2 in 1998 to 1999led to the conclusion that 54% of women in rural and 46% women in urban areas are anaemic[7]. The National Nutritional Anaemia Prophylaxis Programme (NNAPP) was started in 1970 with the sole aim of reducing the prevalence of anaemia to 25 percent.Table-1 reveals that the maximum participants of pregnant women was in the age group of 20 to 29 years (77.5%) l.A similar study conducted in Aurangabad city, India by Pushpa O Lok are, revealed that maximum (87.2%) subjects were between ages above 20 to 30years[8].Table-2 shows incidence of anemia among women of age group 20 years to 29 years was 71.9% (mild 27.8%, moderate-37% severe 6.9%). Among the educated category, majority suffering with anaemia were illiterates (46.3%) as compared with other education levels, lesser in primary school (23.5%), secondary school (18.9%) and graduates/ PG's (10.7%).A similar study conducted in 7 states by K.N.Agarwal et al revealed that the anaemia in illiterates (those who neither read nor write) among pregnant women was highest in M.P(68.0%) followed by 46.3%, 45.3%, 30.7% 28.7%, 8.8% and1.3% in the states of Orissa, Assam, Haryana, Tamilnadu, H.P and Kerala, respectively[9]. A similar study done by Pushpaet al showed that proportion of pregnant women suffering from anaemia was 96.4%, 94.8%,92.1% and 91.5% in illiterates, those educated up to primary, middle and high school respectively. Hence it was concluded that lower the educational level of women, higher the probability of suffering from anaemia during pregnancy. Among occupation category, high prevalenceof (96.7%) anemia was found among housewives and agricultural labourers as compared with employees (3.3%) . A similar study reveals that the proportion of pregnant women

suffering from anaemia in classes I and II was less (47.63% and 71.4%,respectively) as compared with the lower socioeconomic status(93.56%, 94.45%, and 94.15% in classes III-V, respectively).It was obvious that the socioeconomic status is inversely proportional to prevalence of anaemia . This association between the socioeconomic status of a family and anaemia during pregnancywas found to be statistically significant ($P< 0.05$).21.Women who take daily antenatal iron supplementation are less likely to develop iron deficiency anaemia at term. For better compliance and results, two injections of iron dextran (250 mg each) given intramuscularly at 4 week intervals along with tetanus toxoid injection have beenadvised.Table-4 underlines the fact that dietary habits have influence on anaemia. The vegetarian group of pregnant women was more likely to have (40.24%) anaemia as compared with those having mixed dietaryhabitsIn similar study ,Baig Ansary et al found that tea consumption and low in take of red meat were associated with anaemia[10]. Meat is a common component of diet of pregnant females in developed countries which explains the lower anaemia prevalence.

Conclusion

A very high prevalence of anaemia (58.48%) in pregnant women is an indicator of poor outcome of national and WHO programmes specifically designed to take care of this problem. Mandatory regular supply of IFA tablets to adolescent girls and pregnant women from 24th week onwards till 12 weeks of postpartum period may help in achieving this goal. Food fortification and timely interventions for reducing the burden of the malaria, worm infestations and other infectious diseases may go a long way in reducing prevalence of anemia. Iron preparations and balanced diet should be prescribed to all pregnant females by health care providers..

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