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Original Article

Study of Prevalence of Anaemia and its Socio-Demographic Variables in Pregnant Women in Rural Uttar Pradesh

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Abstract

Anaemia affects mainly the women in child bearing age group, young children and adolescent girls. The present cross-sectional study was conducted to study the prevalence of anaemia and the socio-demographic factors associated with anaemia in pregnancy in a rural area. The study was conducted amongst the rural pregnant women reporting to the Rural Health Training Center (RHTC) of Hind Medical College Lucknow, Uttar Pradesh.

A total of 100 pregnant women with gestational period between 12-20 weeks were registered for the study. The study variables included the blood hemoglobin level, age, education, religion, caste, income, type of family, gravida, birth interval, number of abortions and history of abnormal bleeding. A high prevalence (96.0 %) of Iron deficiency anaemia (Hb <11 gm / dl) was observed. Majority of the anaemic women (56.25%) were in 20-24 years age group. The association of socio-demographic characteristics like type of family, education and socio-economic status with the anaemic status was not statistically significant. Thus, considering the high-risk status of anaemia in pregnancy, there is a need to initiate intervention measures at all levels of health care delivery.

Keywords: Pregnant Women; Anaemia; Rural Area.

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Introduction

About one third of the global population (over 2 billion) is anaemic [1]. Prevalence of anaemia in all the groups is higher in India as compared to other developing countries [2]. Anaemia in pregnancy is an important public health problem worldwide. WHO estimates that more than half of pregnant women in the World have a haemoglobin level indicative of anaemia (< 11.0gldl), the prevalence may however be as high as 56 or 61% in developing countries [3]. Women often become anaemic during pregnancy because the demand for iron and other vitamins is increased due to physiological burden of pregnancy. The inability to meet the required level for these substances either as a result of dietary deficiencies or infection gives rise to anaemia [4].

Anaemia ranges from mild, moderate to severe and the WHO pegs the haemoglobin level for each of these types of anaemia in pregnancy at 10.0 – 10.9g / d1 (mild anaemia) 7 – 9.9g / dl (moderate anemia) and < 7g / dl (severe anaemia). Prevalence of anaemia can be as high as 61% in developing countries with a high incidence and severity occurring among primigravidae living in malaria endemic areas [3]. Studies in Nigeria have shown that malaria is still a major problem among pregnant women [3,4].

In pregnancy, anaemia has a significant impact on the health of the foetus as well as that of the mother. 20% of maternal deaths in Africa have been attributed to anaemia [4]. Foetuses are at risk of preterm deliveries, low birth weights, morbidity and perinatal mortality due to the impairment of oxygen delivery to placenta and foetus [5,6,7].

The importance of anaemia as a major public health problem throughout the world is widely recognized. According to WHO, in developing countries the

prevalence of anaemia among pregnant women averages 56%, with wide variations in different regions of the world [8].

In India, anaemia is the second most common cause of maternal deaths, accounting for 20% of total maternal deaths [9]. Anaemia affects mainly the women in child bearing age group, young children and adolescent girls. The association of anaemia with adverse maternal outcomes such as puerperal sepsis, ante-partum haemorrhage, post-partum haemorrhage and maternal mortality is no longer a debatable subject [10].

Apart from the risk to the mother, it is also responsible for increased incidence of premature births, low birth weight babies and high perinatal mortality [11]. The National Nutritional Anaemia Prophylaxis Programme (NNAPP) was initiated in 1970 during fourth five year plan with the aim to reduce the prevalence of anaemia to 25 percent [12].

In view of the above, present study was carried out to find out the prevalence of anaemia amongst pregnant women and to study the factors associated with anaemia in pregnancy.

Material and Methods

The present study was conducted in the Rural Health Training Centre (RHTC) of Hind Medical College, Lucknow. The rural pregnant women reporting to the RHTC formed the study population. In the present study purposive sampling technique was applied. Based on the knowledge that about 50% pregnant women in the country are anaemic[13], it was assumed that a sample size of 100 shall be adequate for a preliminary study.

A total of 100 pregnant women with 12-20 weeks of gestation, reporting to RHTC within three months i.e. Oct-Dec. 2005 were registered for the study. The women with multiple pregnancies and bleeding disorders were excluded from the study.

The pregnant women were informed about the study; consent form was filled and were interviewed using a pre- structured, pre-tested schedule. Haemoglobin estimation was done by Sahli's method. Anaemia was classified as per the WHO grading criteria [13]. The typing of anaemia was done as per standard peripheral blood smear examination method [14]. Modified BG Prasad classification was used for income classification [15,16]. Chi-square and related tests were used as applicable.

Observations

In the present study 96.0% pregnant women were anaemic. 24.0% had mild, 54.14% moderate and 21.87 % severe anaemia. Majority of anaemic women (56.25%) were in 20-24 years age group.

Table 1: Age-wise distribution of degree of anaemia

Age (in years)	Anaemic status				Normal hemoglobin	Total
	Mild	Moderate	Severe	Total		
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
<20	6 (26.08)	11 (21.15)	2 (9.52)	19 (19.79)	0 (0.0)	19 (19.0)
20-24	13 (56.52)	32 (61.53)	9 (42.85)	54 (56.25)	2 (50.0)	56 (56.0)
25-29	4 (17.39)	8 (15.38)	7 (33.33)	19 (19.79)	1 (25.0)	20 (20.0)
30 and above	0 (0.0)	1 (1.92)	3 (14.28)	4 (4.16)	1 (25.0)	5 (5.0)
Total	23 (23.95)	52 (54.14)	21 (21.87)	96 (96.0)	4 (4.0)	100 (100.0)

Table 2: Association of anaemic status with socio-demographic factors

Characteristic	Anaemia	Normal	Total
Type of family	**No. (%)**	**No. (%)**	**No. (%)**
Nuclear	15 (15.62)	0 (0.0)	15 (15.0)
Joint	21 (21.87)	2 (50.0)	23 (23.0)
Extended	60 (62.5)	2 (50.0)	62 (62.0)
Total	96	4	100
Educational status	**No. (%)**	**No. (%)**	**No. (%)**
Illiterate	20 (20.83)	1 (25.0)	21 (21.0)
Just literate	34 (35.41)	0 (0.0)	34 (34.0)
Primary	26 (27.08)	0 (0.0)	26 (26.0)
Middle school	9 (9.37)	1 (25.0)	10 (10.0)
High school	4 (4.16)	1 (25.0)	5 (5.0)
Senior secondary	3 (3.12)	1 (25.0)	4 (4.0)

Graduate & above	0 (0.0)	0 (0.0)	0 (0.0)
Total	96	4	100
Socio -economic status	**No. (%)**	**No. (%)**	**No. (%)**
Class I	0 (0.0)	0 (0.0)	0 (0.0)
Class II	4 (4.16)	1 (25.0)	5 (5.0)
Class III	13 (13.54)	2 (50.0)	15 (15.0)
Class IV	32 (33.33)	0 (0.0)	32 (32.0)
Class V	47 (48.95)	1 (25.0)	48 (48.0)
Total	96	4	100

Table 3: Association of anaemia with number of abortions.

No. of abortions	Anaemia	Normal	Total
	No. (%)	No. (%)	No. (%)
0	80 (83.33)	3 (75.0)	83 (83.0)
1	12 (12.5)	1 (25.0)	13 (13.0)
2 or more	4 (4.16)	0 (0.0)	4 (4.0)
Total	96	4	100

The association of socio-demographic characteristics like type of family, education and socio-economic status with anaemic status is shown in table 2. In the present study majority of pregnant women belonged to extended or three generation family (62.0%). The association with anaemic status was statistically not significant ($p>0.05$). Most of women were just literates (34.0%). Only 9.0% were educated high school and above. The association with anaemic status was statistically not significant ($p>0.05$). Majority (80.0%) belonged to socio-economic class IV and V. The association with anaemic status was also statistically not significant ($p>0.05$).

The association of anaemia with number of abortions is shown in table 2. In the present study 83.0% pregnant women had no history of abortions however 83.33% of them were anaemic. The association between anaemia and abortion was statistically not significant ($p>0.05$). All the pregnant women with past history of abnormal bleeding (11.4%) were anaemic and (76.93%) had moderate or severe anaemia.

Discussion

A total of 100 pregnant women reporting to a rural health care facility were studied. In the present study a high prevalence of anaemia (96.0%) among pregnant women was observed. Majority (54.14%) had moderate anaemia. Most of the anaemic pregnant women were between 20 and 24 years of age (56.25%), followed by equal distribution in less than 20 years (19.79%) and 25-29 years (19.79%), and only (4.16%) in 30 years and above (Table 1). Majority of pregnant women were Hindus (91.2%), followed by Muslims (6.1%) and Sikhs (2.6%). Normocytic hypochromic and microcytic hypochromic type of blood picture, a characteristic of iron deficiency anemia was observed. The prevalence of anaemia was not significantly related with age, type of family, income, religion, caste, birth interval and number of abortions (Tables 1, 2 and 3). There was a trend of low severity of anaemia with high per capita income. Women with gravida >2 more often had severe anaemia. However, these trends were statistically not significant. The pregnent women were observed very high prevalence of anaemia and its severity in the current study although is similar to earlier studies [17,18]. Since haemoglobin estimation was done at 12-20 weeks of gestation, e.g., before maximum haemodilution, the observed status reflects pre-pregnant levels, which calls for widening the scope of programme for prevention and control of nutritional anaemia, so as to cover adolescent girls also. As in other studies, the severity of anaemia was inversely related to educational status [19] and income [20].

Conclusion

A very high prevalence of anaemia (96.0%) early in pregnancy i.e. 12-20 weeks of gestation is indicative of the status of pre-pregnant levels. It calls for studies on anaemia among adolescent girls and a strategic shift in a program focussed on pregnant women alone to broaden the coverage so as to include adolescent girls also for control of anaemia. As normocytic hypochromic and microcytic hypochromic blood pictures were predominant, it indicates deficient iron intake / absorption irrespective of age, type of family, caste, religion or number of children as the prevalence

was equally high in all groups in this population.

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