



To Study the Prevalence of Anaemia and Its Morphological types in Women of Reproductive Age Group in a Rural Area at Gadia, Barabanki (U.P.)

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Introduction

Anaemia is a major public health concern all over the world, affecting all ages and both genders. It is one of the most prevalent health issues among women of reproductive age group and has severe economic and social consequences. World Health Organisation (WHO) estimates 24.8% of people suffering from anaemia across the world¹. The prevalence rates are higher in developing countries like India, especially affecting toddlers, adolescents and women. In 2011, the World Health Organization (WHO) estimated that prevalence of anaemia among non-pregnant women of reproductive age group was 29% worldwide, 41.5% in South-east Asian region, and 48% in India.²

Anaemia adversely affects cognitive and motor development and causes fatigue and low productivity.^{3,4,5} When it occurs in pregnancy, it may be associated with low birth weight and increased risk of maternal and perinatal mortality.^{6,7} In developing regions, maternal and neonatal mortality were responsible for 3.0

million deaths in 2013 and are important contributors to overall global mortality.⁸

Anaemia may result from a number of causes, with the most significant contributor being iron deficiency.⁴ Approximately 50% of cases of anaemia are considered to be due to iron deficiency, but the proportion probably varies among population groups and in different areas, according to the local conditions.¹ Among the other causes of anaemia, heavy blood loss as a result of menstruation, parasitic infestations, acute and chronic conditions, including malaria, cancer, tuberculosis, and HIV can also lower blood haemoglobin concentrations. The presence of other micronutrient deficiencies, including vitamin A and B12, folate, riboflavin, and copper can also increase the risk of anaemia.¹

Anaemia is classified into three types on the basis of severity, as mild anaemia, moderate anaemia and severe anaemia. Mild anaemia corresponds to a level of haemoglobin concentration 11-11.9g/dl, moderate anaemia corresponds to a level of 8-10.9g/dl and severe anaemia corresponds to a

level of haemoglobin concentration of less than 8.0g/dl in non-pregnant women.⁹

This study was conducted on 200 respondents from Gadia, Barabanki under the Department of Pathology, Mayo Institute of Medical Sciences, Barabanki (U.P.)

Aim of the Study

The aim of our study is to evaluate the prevalence of anaemia and to detect the most common morphological type in females of reproductive age group in Gadia, Barabanki (U.P.). Pregnant or lactating women will not be considered. Women less than 12g/dl haemoglobin will be considered anaemic.

Objective

1. Primary

To study the prevalence of anaemia in women of reproductive age group (15-49 years), in Gadia, Barabanki.

2. Secondary

To assess the most prevalent morphological type of anaemia in the above mentioned population.

Materials and Methodology

1. Study area: Gadia, Barabanki, U.P.

2. Study design: Cross sectional study was used to assess the prevalence of anaemia and the most common morphological type among reproductive age women of a rural community of Gadia, Barabanki.

3. Study criteria: Women of reproductive age group (15-49 yrs.) except pregnant and lactating women were selected for the study.

4. Study population: 200

5. Duration of study: 29th June to 09th October 2014

6. Sample and Sampling technique: A total of 200 women of reproductive age group (15-49years) were selected through random sampling method. House to house sampling was done. Sampling was done from different areas of the village for a representative sample.

7. Study tools

- i. A predesigned questionnaire containing the basic questions.
- ii. A predesigned report containing the required tests for the study.
- iii. An informed consent containing the approval of the subject for the sampling was obtained after explaining the purpose of the study in their local language. Subjects were assured that their responses will be kept confidential and will only be used for research purposes.

8. Study technique

- i. Estimation of hemoglobin by cyanmet-haemoglobin method.
- ii. Morphology of anaemia by examination of the peripheral blood smear

9. Data collection

Cross sectional study: Data collection of the study was carried out on desired sample of 200 women. They were chosen randomly from the different parts of the village for a representative data. All the women involved in the sampling were of reproductive age group only. Lactating and pregnant women were excluded. After taking the sample, standard Cyanmethemoglobin method was used for the estimation of hemoglobin and the peripheral blood smears were examined for the morphological type of anaemia. The results were assessed and tabulated.

Results

In the study conducted, out of 200 respondents 189 were found to be anaemic. The results have been tabulated on the basis of severity of anaemia, age group, morphological types and dietary habits. In this study, 94.5% of women in reproductive age group (15-49 years) in Gadia Barabanki were found to be anaemic, with majority of the individuals in mild to moderate category. The percentage of anaemic women in the age group of 15-30 yrs was slightly more than women in the 31-49 age groups. However this difference was not found to be significant. The most common morphological type was microcytic hypochromic anaemia.

Table 1: Percentage of anaemic women in different age groups

S. no.	Age (years)	No. of anaemic women in this age group	Percentage %
1.	15-30	104/107	97.1
2.	31-49	85/94	91.3

Table 2: Representation of morphological type

	Microcytic Hypochromic	Macrocytic	Normocytic normochromic
No. of blood smears	141	14	34
Percentage	74.6	7.4	18

Table 3: Distribution of anaemia on the basis of severity

S. No.	No. of anaemic women	Mild (11-11.9g/dl)	Moderate (8-10.9g/dl)	Severe (<8g/dl)
Total	189	75	80	34
Percentage	94.5	39.9	42.5	18.1

Table 4: Percentage of anaemia prevalent on basis of diet.

Diet	Total No. of women	No. of anaemic women	Percentage
Vegetarian	130	126	96.9
Non-vegetarian	70	63	90.0

All over, there were 130 vegetarian women and 70 non-vegetarian women. Out of these 126 vegetarian women were anaemic and 63 non-vegetarian women were anaemic. So, as per the above data percentage of anaemic vegetarian women (96.9) was more than percentage of anaemic non-vegetarian women (90.0). However this difference was not significant.

Discussion

The aim of this study was to assess the prevalence and the most common morphological type of anaemia in women of reproductive age group. In the sample of 200 respondents, 94.5% were found to be anaemic. When the level of anaemia is disaggregated by severity, the majority of anaemic cases were of mild category (39.9%) to moderate category (42.5%) with 18.1% cases in severe category. Similar results were reported in a study conducted by P. Mishra (2012) in a rural area in Punjab, where about 96.8% of the subjects were

anaemic and majority of anaemic women were in the category of mild to moderate anaemia¹⁰. Mamta, L Tamphasana Devi (2014) also conducted a similar kind of study in rural Punjab. The overall prevalence of anemia was found to be 92.5% which was similar to the results of this study¹¹

As per the morphology of anaemia most of the cases were of microcytic hypochromic type (74.6%). From the remaining cases 7.4% were macrocytic and about 18% were normocytic normochromic (table no. 2). These findings were similar to the study conducted by Bansal Ashish et al (2016) which shows 72% cases with microcytic hypochromic morphology¹². High percentage of microcytic hypochromic morphology could be because of high prevalence of iron deficiency which has been reported as the major cause of anaemia in reproductive females by various studies¹³. Our study includes the morphology of red blood cell also as it is an important tool towards detecting the aetiology of anaemia.

The distribution of anaemia showed that mild to moderately anaemic women comprised the highest number, whereas the number of severely anaemic women was comparatively low. The percentage of anaemic women in the mild category was 39.9 %, moderate category was 42.5% and in the severely anaemic category was 18.1% (table 3). Similar results were seen in the study by Bansal Ashish et al¹². Similar study on the distribution of anaemia was done among reproductive age group (15-45 yrs.) women in a PHC of Rural Field Practice Area of MM Medical College, Ambala, India¹⁴. In this study, the majority of anaemic women were in the category of mild (75.3 %) to moderate (16.9%) and severe anaemia was 7.8%. The difference between the two studies was because we followed the WHO classification of severity of anemia. If we use the same cut-offs for the severity of anemia as the above mentioned study, we get comparable results. This study also showed the prevalence of anemia to be higher in the age group of 15-30 yrs; this finding was similar to the finding in our study.

On categorizing on the basis of dietary habits, anemia was slightly more common in vegetarian (96.9%) than in non-vegetarian women (90.0%) (Table no. 4). This difference was however not significant. This could be because the frequency of consumption of non-vegetarian diet was quite low in majority of families, especially in poor population.

Conclusion

The current study was an attempt to estimate the prevalence of anaemia among reproductive age women in a rural area and the most common morphological type of anemia, as this group is one of the most susceptible groups to develop anemia due to menstrual blood loss, repeated pregnancies and nutritional deficiency. From our study we concluded that the prevalence of anaemia is very high in the reproductive age females of this rural area. The overall study showed 94.6% of respondents to be anaemic; whereas the WHO estimates of the overall prevalence of anemia in India in this population group is around 50%. Majority of the cases were of mild to moderate category that is haemoglobin levels more than 8 g/dl. The microcytic hypochromic morphology was the commonest type, indicating towards high prevalence of iron deficiency which has been reported as the major cause of anaemia in reproductive age females by various studies. From these findings we conclude that health education, proper dietary habits and supplements especially during pregnancy and lactation (as previous pregnancies could be a cause of anemia) would significantly help in decreasing the incidence of anaemia in this population group.

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