Clinical study of anemia in women attending the College of Medical Sciences Bharatpur

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ABSTRACT

OBJECTIVE

To study the clinical profile of Anemia in Women attending the College of Medical Sciences-Teaching Hospital, Bharatpur, Chitwan.

MATERIALS & METHODS

The Study was conducted among 100 women patients attended to the College of Medical Sciences-Teaching Hospital, Bharatpur, Chitwan. Their blood samples were tested and related socio-demographic information was collected. The associated Clinical signs and symptoms with hemoglobin level and the occurrence of anemia were assessed.

RESULT

The peak incidence of Anemia was in the age group of 20-24 yrs (59.7%), and severity of anemia was correlated with sings and symptoms. Majority of them had Microcytic Hypochromic anemia (43.1%) with serum iron level below normal level and increased TIBC (total iron binding capacity) were observed.

CONCLUSION

The high prevalence of Nutritional anemia suggests the dietary advice to be emphasized strongly.

Key Words: Anemia, Haemoglobin, Deficiency of Iron and Serum B_{12}.

INTRODUCTION

Anemia is a global health problem affecting both developing and developed countries, with major problem for human health as well as social and economic development. It occurs at all ages of life, depending on the cause. At the beginning of the 19th century the word anemia was a clinical term referring to pallor of skin and mucus membrane. Prevalence in non-industrialized countries varies between 35% to 60% with average being 56%.[1] The prevalence is very high in the central Asia reported being 70% in India.[2] Commonly it is due to iron deficiency because high iron requirements which is not fulfilled by dietary intake.

Ignorance, poverty and gender bias significantly contributes to this high prevalence. [3-6] Even as mankind marches into the new millennium the disease still

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remains incomplete. Nepal with its population of 22 million is one of the poorest countries in the world and maternal deaths due to anemia are considered the predominant cause of death. Recent WHO data shows that 10.8 million in African countries, 9.7 million in western pacific and 24.8 million is South East Asia or Anaemic, the highest being in South East Asia.[7]

Nutritional anemia is one of the main health problems in developing countries. Unfortunately only few accurate statistics of the prevalence and even less information is available on iron, Vitamin B_{12} & Folic Acid. A study by Thangleela T and Vijaylaxmi P[8] stated parity of woman had significant influence on her Hb. status. The mean Hb level of multigravida was much lower than primary, secondary and third gravida.

The study by Drey M et al Nepal[9]. Mehrotra M et al India[10] Batool. Z. Zafar Pakistan[11], Sreegiri S et al India[12] had shown the degree of anemia among women greatly depend on the economic status and the literacy rate. Nutritional anemia is one of the main health problems in many countries but unfortunately there are only few statistics of the prevalence of various types of anemia. Other cause of anemia, include parasitic infestation,[13] infections like Malaria, TB, HIV and also other micro nutrient deficiencies.

WHO defines anemia as hemoglobin concentration of less than 11 gm/dl and haematocrit of less than 0.33[1]. A typical iron deficiency anemia shows Hb less than 10 gm%, RBC less than 4 million per mm^3, PCV less than 30 % MCHC less than 30 %, MCV less than 75/mm^3, MCH less than 25 pgm.

Nepal being a poor country, contributes a huge percentage of global burden. Unfortunately there are not much of literatures available on the studies conducted in this part of the world. Keeping in view of the early diagnosis and to observe the magnitude and common type of anemia among women in this region this prospective study was under taken at CMS-TH, Bharatpur, Chitwan.

MATERIALS AND METHOD

A total No of 100 cases were studied for duration of 3 years, from January 2011 to December 2013. A detailed questionnaire regarding in patient number, age, address, occupation, religion, social-economic status, detail history, regarding menstrual cycle, age of menarche, regularity of cycle, age at marriage, parity were considered.

History of general weakness, fatigue, shortness of breath, palpitation, nausea and vomiting, loss of wt., swelling of feet, loss of appetite, headache, paresthesia, glossitis, cheilities. Any medical history of HTN, DM, and venereal disease was taken. Generalized physical examination was carried out with special reference to pallor of skin and mucous membrane, pulse and blood pressure was noted. All cases with Hb less than 11 gm/dl were selected. Blood investigation was carried out for complete hemogram, PBS, serum iron, TIBC, serum Vitamin B12.

AGE DISTRIBUTION

Out of 100 patients 72 of them had Hb less than 11gm/dl Minimum age was 18yrs and maximum was 32 years Mean age 23 years. It was observed that women belonging to age group 20-24 years had higher frequency than other age group. (table 1)

Table 1: Age distribution

Age in years	No of cases	Percentage
15 -19 yrs	12	16.7%
20- 24 yrs	43	59.7%
25-29 yrs	14	19.4%
30-34 yrs	13	4.2%

This study showed the most frequent degree was moderate degree of anemia. (table 2)

Table No 2: Degree of Anemia

Frequency of degree of anemia	No. of cases	Percentage
Mild	33	45.8 %
Moderate	37	51.4 %
Severe	2	2.8 %
Total	**72**	**100 %**

Most frequent type of anemia found by peripheral blood smear was Microcytic Hypo chromic type of anemia. (table 3)

Table 3: Peripheral Blood Smear

Type	Frequency	Percentage
Microcytic/Hypochromic	31	43 %
Macrocytic / Hyperchromic	1	1.4 %
Dimorphic	7	9.4 %
Normocytic / Normochromic	24	33.3 %
Normocytic / Hypochromic	9	12.5 %
Total	**72**	**100%**

As represented in table 4, it was observed that out of 72 patients, 25 of them had serum iron level below than normal range and had been observed among patient. With Microcytic/Hypochromic anemia, than others. (Normal serum iron 39-145 microgm/ltr).

Table 4: Relationships between serum iron level & type of Anemia

PBS	Below (N)	Within (N)	Total
Microcytic/Hypochromic	14	17	31
Macrocytic/Hyperchromic	0	1	1
Dimorphic	4	3	7
Normocytic/Normochromic	6	18	24
Normocytic/Hypochromic	1	8	9
Total	**25** **(34.7%)**	**47** **(65.3%)**	**72** **(100%)**

As shown in table 5, 23 patients had serum B_{12} below normal range. Normal serum B_{12} is 240-900 Micro gm/ltr

Table 5: Serum B$_{12}$ levels

B$_{12}$ range	Frequency	Percentage
Below normal range	23	31.9%
Within normal range	49	68.1 %
Total	72	100 %

The present study showed that, out of 72 anemic patients, 25 of them had serum iron below normal range. (Table 6)

Table 6: Serum Iron

Serum Iron (39-145) micro gm/lt	No of Cases	Percentage
Below lower range	25	34.7 %
Within Normal range	47	65.3%
Total	72	100%

Table 7: Relation between Peripheral Blood Smear and TIBC

	TIBC 262-464 Microgram/dl		
PBS	Below Normal	Above Normal	Total
Microcytic Hypochromic	1	30	31
Macrocytic/ Hyperchromic	0	1	1
Dimorphic	1	6	7
Normocytic/ Norchromic	1	23	24
Normocytic/ Hypochromic	0	9	9
Total	3 (4.2%)	69 (95.8%)	72 (100%)

The present study showed general weakness was the most common presentation among the anemic patients. (table 8)

Table 8: Frequency of different Symptoms

Symptoms	No of cases	Percentages
General weakness	62	86%
Short ness of Breath	49	68 %
Nausea & Vomiting	30	41.7 %
Palpitation	18	25 %
Pedal odema	15	20.8 %
Headach	13	18.1 %
Paresthesia	5	6.9 %
Glossitis	5	6.9 %
Chelitis	3	4.2 %

Common Causes of Anemia

1. Nutritional Deficiency

   a. Iron deficiency   43 %

   b. Folate and Vit B$_{12}$ 1.4 %

   c. Dimorphic   9.4 %

Infections:

   a. Hook worm infestation   15 %

   b. Ascariasis   10 %

   c. Giardia Lambia   10 %

d.	Trichuris	5 %
e.	Malaria	35 %
f.	HIV Infection	8 %
g.	Drugs	5 %
h.	Renal decease	12 %

Normocytic Normochromic

1. Chronic liver disease.   0 %
2. Chronic. Renal disease   33%
3. Myxedema   47 %
4. Myelodysplastic disorder   0 %
5. Myeloproliferative disorder   13 %
6. Hereditary sideroblastic   7 %

DISCUSSION

Anemia is the most common nutritional problem among women, affecting 230 million women in the developing world was noted. In the present study, out of total 100 cases screened for anemia 72% were found to have anemia of varying degree using the cut off value of Hb<11gm/dl.[14]

In the developing countries anemia is probably due to poor Nutrition, worm infestation however lower incidence among western countries can be attributable to the fact that people are placed in better environment their dietary habit and socio economic condition are better.

In the present study, moderate degree of anemia outnumbered both mild & severe degree of anemia. About 43.1 % had Mic/Hypo anemia 33.3% showed Normo/Normochromic anemia & 9.7 % had Dimorphc anemia & only 1.4% had macrocytic anemia as evaluated by PBS & absolute values. According to various studies the most common type of anemia is iron deficiency anemia. These anemias are common is those who have inadequate nutritional diet and receiving iron folate supplement. The result of the present study of serum iron and TIBC in Micro/ Hyporochromic and dimorphic anemia were found to be in close approximation with those of Bondvik G et al[15] conducted in Nepal.

This study showed 86% of the patients presented with generalize weakness 68% with SOB, 41.7% with nausea and vomiting, 25% palpitation, 20.8% with pedal edema, 18.1% with headache, 6.9% with parathesias, 6.9% with glossitis and 4.2 % with cheilitis. This also revealed to most of the women from rural community were more anemic than from urban area it gives evidence that education and income reduced the symptoms of anemia. This indicates that mother education influences links with better health & food practices such as proper use of medicine at proper time, proper consultation with health professional's, proper food intake and many more, resulting in direct effect on her health.

CONCLUSION

Among 100 patients, 72 had Hb <11gm/dl with mean age of 23 years. It was observed that women belonging to age group 20-24 years had higher frequency than

other age group. The most frequent (51.4 %) was observed of moderate anemia. The most frequent anemia found by the peripheral blood smear was Microcytic Hypochromic anemia.

The most common presentation among anemic patients was generalized weakness (86%) and shortness of breath in (68%). The most common cause was found to be iron deficiency anemia. The most common infection was malaria (35%) and most common cause for normocytic normochromic anemia was myxedema (47%).

Low serum B12 level was found in 32 % of woman. In microcytic hyprochromic anemia and dimorphic anemia, mean serum iron was found to be low with a raised total iron binding capacity.

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