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A study of anemia cases presented at OPD of a tertiary care hospital

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Abstract

Introduction: Anemia is most prevalent health problem in our country in all age group and present in both men and women. Women of reproductive age group are most vulnerable for anemia.

Objectives: This study was to find out the present status and the prevalence of anemia cases in our hospital which is tertiary care health centre.

Methodology: This study was undertaken at the medical college hospital. A total of 650 cases of anemia were studied over a period of one year between January 2018 and December 2018. In all cases blood sample were collected in EDTA vacuette and Hb estimation and other findings were obtained from automated hematology analyzer and Peripheral smear examination was also done.

Results: Out of total 650 anemic samples were from female patients and were from male patients. Majority of cases of anemia were having blood picture of microcytic hypochromic type.

Conclusion: Females having more number of anemic cases and most them are preventable with early diagnosis, proper nutrition and awareness about their cause.

Keywords: Anemia, microcytic hypochromic blood picture, peripheral blood smear

Introduction

According to WHO, hemoglobin concentration of 12.0 g/dl in women and 13.0 g/dl in men at sea level is considered as lower limit. By definition anemia is a disorder in which there is qualitative and or quantitative diminution of haemoglobin or RBC or both in respect to the age and sex of the individual^[1]. Overall One third population of the world suffers from anemia and India is having very high prevalence rates for it. NFHS-3(National Family Health Survey) reveals that prevalence of anemia is 70% in pregnant women, 70-80% in children, and 24% in men of adult age^[2].

The highest prevalence of anemia exists in the developing world, where its causes are multifactorial^[3]. Most of the anemias are due to nutritional deficiency like inadequate uptake of iron, folic acid and vitamin B12, proteins, amino acids, vitamins A, C, niacin and pantothenic acid^[4]. It is estimated by WHO that prevalence of anemia in developed and developing countries in pregnant women is 14 percent and 51 percent respectively and for India this number has increased up to 65-75 percent^[3]. Anemia is wide spread in all states of India. Poor diet, lack of sense of hygiene, lack of health consciousness social taboos and poor economic status all contributes to major barrier for eradication of anemia in our country^[5].

The main objective of our study was to find out the present status and the prevalence (of said time period) of anemia cases in our hospital which is tertiary care health centre. Anemia is preventable health care problem and even primordial prevention can arrest a sizable number of anemia before development. Despite of various programs taken by our government, still anemia is major health problem for us. The prevalence is on the rise especially in vulnerable groups like pregnant women, women in reproductive age group and in children. So we want to focus on the prevalence of anemia in our hospital.

Materials and Methods

The present study was conducted on OPD blood samples received for Hemoglobin estimation at central laboratory, GMERS Medical College, Himmatnagar. Study duration is of 12 month during January 2018 to December 2018. It was an Observational study and samples were considered anemic as per WHO reference criteria. In all cases blood sample were collected in EDTA vacuette and Hb estimation and other findings were obtained from

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automated hematology analyzer and Peripheral smear examination was also done. In the present study, we include age range 0-70 years. The patients are divided into 6 sub-groups < 18 years (Pediatric), >18 – 30(young adults), >30-40(adults), >40 – 50 (adults), >50 – 60(late adults and old ages), >60 – 70(geriatric group). Permission was taken from Institutional Ethics Committee to conduct the study. Statistical analysis was done on Microsoft excel.

Inclusion criteria: 1) all anemic samples as per WHO reference range.

Exclusion Criteria: 1) Patients above 70 years were excluded.

2) Patient having leukemoid reaction, leukaemia, and platelet disorders were excluded from study.

As anemia is very prevalent in India following cut off mark were considered.

<7 gm% means severe anaemia, 7-10 gm% (moderate to mild anaemia), >10 – 13gm% (low normal to normal), >13 – 15gm% (absolutely normal), and >15 gm% (very healthy level).

Observations

In present study out of total numbers of 650 cases, 240 patients were male and 410 patients were female (Figure 1). M; F =1: 1.7 is the gender ratio of our study.

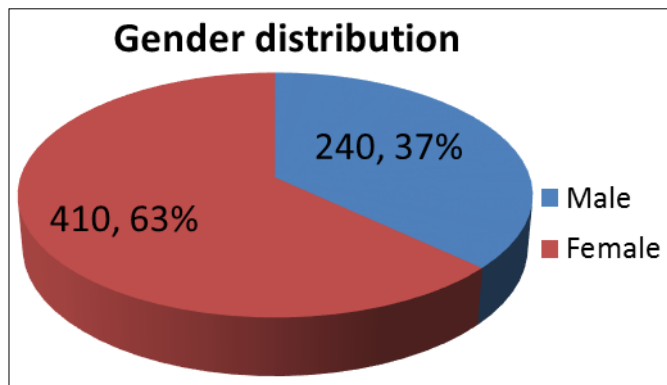


Fig 1: gender distribution of anemia cases.

Other observations were written in tabulated form, from table no. 1 to 3.

Table 1: shows, age wise distribution of anemic patients

S. No.	Age Range	No. of cases	Percentage
1	Less than 18	53	08.15
2	18-30	176	27.07
3	31-40	218	33.53
4	41-50	127	19.54
5	51-60	47	07.23
6	61-70	29	4.46
		650	100

Table no. 1 shows that majority of cases belongs to second and third decade of life and females were more affected than males.

Table 2: Gender distribution of anemic cases in different age groups.

S. No.	Age Range	Male		Female	
		Number	%	Number	%
1	Less than 18	12	05.0	41	10.0
2	18-30	29	12.08	147	35.85
3	31-40	101	42.08	117	28.54
4	41-50	59	24.58	68	16.58
5	51-60	28	11.67	19	04.63
6	61-70	11	04.58	18	04.39
		240	100	410	100

Table no. 2 shows that after third decade the gender difference was decreased and as a matter of fact in fifth decade it is reversed.

Table 3: Distribution of cases according to anemia types on peripheral blood smear examination

S. No.	Peripheral blood picture	Number	Percentage
1	Microcytic hypochromic	331	50.92
2	Normocytic normochromic	232	35.69
3	Dimorphic	62	09.53
4	Macrocytic	25	03.84

Table no. 3 shows maximum number of cases were having microcytic hypochromic blood picture followed by normocytic normochromic blood picture. Majority of these microcytic hypochromic anemia cases were presumed as iron deficiency anemia after interpreted by blood picture and RBC indices.

Discussion

Present study shows that majority of cases belongs to females and females of reproductive age group were affected the most. Menstruation and child birth both things takes part in it, and lack of awareness and improper feeding habits in females are the major factors affecting the hemoglobin levels in females [6, 7]. Anemia in pregnant females is so significant that it attract many researchers to do special study on this topic [8, 9, 10].

Nutritional anemia in pregnant woman in India is a major problem and more than two third of cases are anaemic. According to Toteja *et al.* [9] 60% of adolescence girls are anaemic. Priyali Pathak *et al.* [10] observed that in pregnant women micronutrient deficiency in diet like folate, zink, iron and iodine etc. are the causes of low birth weight (LBW) babies and there it is a fact that LBW babies contribute to anaemia in paediatric age group [10].

Majority of anemia observed in our study were of microcytic hypochromic type followed by normocytic normochromic anemia, Dimorphic and macrocytic anemia. Majority of microcytic hypochromic anemias are having nutritional cause and basically they are iron deficiency anemia. Many researchers also found the similar findings; Dr. Vijaynath *et al.* [12] observed that iron deficiency anemia has very bad effect on mother and fetus. Agarwal *et al.* [13] studied that occupation, literacy, less consumption of iron and vitamin B12 & folate all contributes in the development of anemia. Verma M. *et al.* [14] found that vegetarian food

habits and girls specially after menarchae are at risk for development of anemia. In our hospital majority of patients belongs to lower socioeconomic group and poverty is the major determining factor in causation of anemia in most of the cases. Because of poverty there is poor hygiene, ingestion of contaminated water, no proper nutritious food to pregnant mother.

Conclusion

We conclude that number of anemia cases reaching hospitals OPD's are very high and females outnumbered the males. Majority of cases anemia is of microcytic hypochromic type of nutritional origin. Most of these cases are preventable with early diagnosis, proper nutrition and awareness about their cause.

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