ANEMIA IN ADULT MALES: A STUDY OF ITS INCIDENCE, ETIOLOGY PATTERN AND CAUSATIVE FACTORS

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Abstract

Background: Anemia among men in India is a major health problem with negative impacts on health, wellbeing and economic productivity. Studies on anemia have focused primarily on women and children, but men less attention have been paid to men with anemia. **Objectives**: To identify the type of anemia among adult males study anemia profile i.e. Heamoglobin level, peripheral smear, Hematological indices like MCV, MCHC, reticulocyte count, Total Iron binding capacity, serum iron, serum ferritin in all subject. To compare anemia profile in different age groups. **Methods**: All male patients of anaemia attending department of General Medicine, J.A. Group of Hospitals, G.R.M.C., and Gwalior were evaluated for detailed history of blood investigations, anemia profile. **Results**: In this study maximum no. of participants were in 46-60 years age group (42%) and almost 1/3rd of 34% participants in 18-30 year age group. Majority of study participants belong to lower socio-economic class. Dimorphic and macrocytic hypochromic anemia in late middle age group population and microcytic hypochromic anemia show bimodal trend (young and late middle age group population). Significant association was observed between morphological characteristic of peripheral blood smear and serum iron. **Conclusion**: Anemia is a widely prevalent health problem in India especially in rural area.

Keywords: Anemia, Socioeconomic status, Age group, Public Health

INTRODUCTION

Anaemia in men has been studied much less extensively. Yet, anaemia in this population group is important because the condition can cause fatigue, difficulty concentrating, and lethargy, which does not only reduce quality of life but is also thought to decrease economic productivity.[1] Many studies indicate that as the age advances prevalence of anemia also increases and it is more common in elderly female.[2]

Anaemia is also the most common nutritional deficiency across the globe.[3] Iron deficiency anaemia is a major cause of nutritional anaemia in India.[4]Many studies have Other nutrients like Vitamin B12, folic acid, proteins, Vitamins A, C, Niacin, Pantothenic acid play a part in maintaining haemoglobin level.[5]

In the Indian context, where the health services are still inadequate for a major chunk of the population, a systematic study is required to understand the pattern and prevalence of anemia in the adult male age group.

This study was conducted to evaluate the incidence of anemia in adult male population, morphological pattern anemia and to find its commonest morphological pattern amongst

hospitalized patients. Study of various morphological pattern of anemia helps in guiding etiology of anemia and thus directing towards the further required investigations.

MATERIAL AND METHODS

The prospective hospital based study was conducted in Department of Medicine, G.R.M.C., Gwalior from November 2019 to July 2021 on 100 patients.

All male patients age group > 18 years and their hemoglobin < 13 gm/dl (according to WHO) were included in the study and male patients age group < 18 years, patients with known history of any traumatic bleeding manifestations, history of any blood transfusion within 3 months, CKD patients and malignancies were excluded from the study.

Hemoglobin, peripheral smear examination of blood, hematological indices MCH, MCV, MCHC, reticulocyte count, stool for occult blood, LFT, Serum iron, TIBC, Serum ferritin, PR Examination, RFT and Ultrasonography tests were done.

Statistical analysis: All the data was analyzed using IBM SPSS ver. 20 software. Data is analyzed using frequency distribution and cross tabulation methods. Data is expressed and number and percentage. Chi square test was used to compare the categorical variables. P value of <0.05 is considered as significant.

RESULTS

The present prospective hospital based study was conducted on 100 subjects, in Department of Medicine, GRMC, Gwalior from November 2019 to july 2021. Subjects with age >18 years and hemoglobin <13 g/dl were taken following observations were made.

Table 1: Age wise distribution of study participants
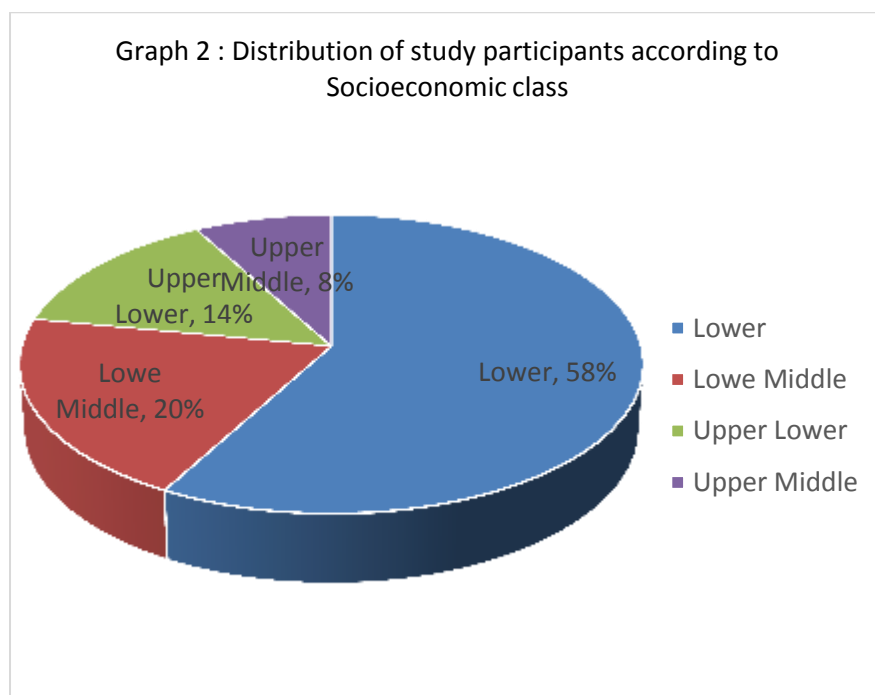
Age Group	N	%
18-30 Year	34	34%
31-45 Year	11	11%
46-60 Year	42	42%
>60 Year	13	13%
Total	100	100%

Graph 1 : Age wise distribution of study participants
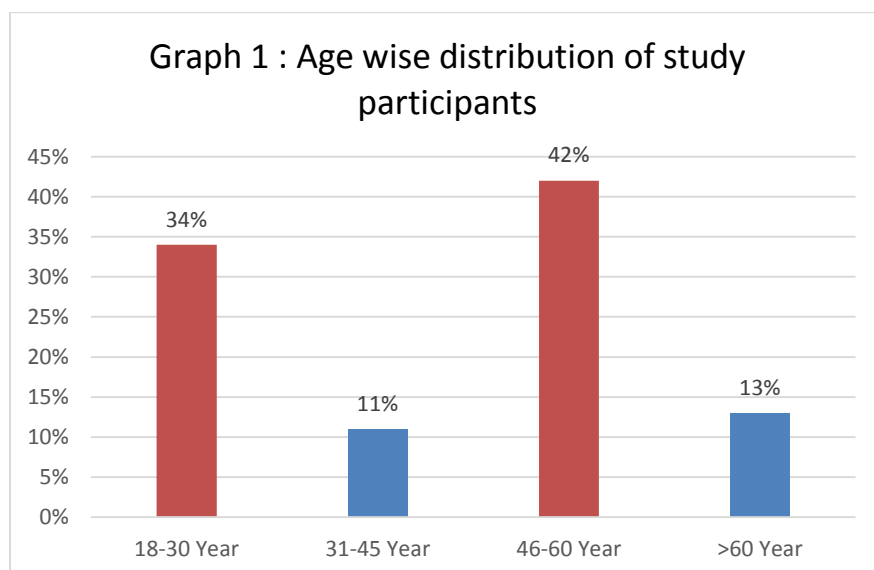
In age wise distribution of participants there is a bimodal distribution of participants were observed among young adults (18-30 Year) and late middle age group (46-60 year age group). Maximum number of participants were in 46-60 Year age group (42%) and almost one third of (34%) participants were in 18-30 year age group.

Table 2: Socioeconomic status wise distribution of study participants

Socioeconomic class	N	%
Lower	58	58%
Lowe Middle	20	20%
Upper Lower	14	14%
Upper Middle	8	8%
Total	100	

Graph 2 : Distribution of study participants according to Socioeconomic class

Majority (58%) of study participants were belongs to lower socioeconomic class. No study participant belongs to upper socioeconomic class group.

Table 3: Association of type of Anemia with Socioeconomic status

Age Group	Type of anemia				P Value
	Dimorphic Anemia	Macrocytic Hypochromic	Microcytic Hypochromic	Normocytic Normochromic	
Lower	4 (6.9%)	4 (6.9%)	28 (48.3%)	22 (37.9%)	
Lowe Middle	2 (10%)	0	11 (55%)	7 (35%)	
Upper Lower	0	0	9 (64.3%)	5 (35.7%)	0.156
Upper Middle	0	2 (25%)	6 (75%)	0	
Total	6	6	54	34	

As per socioeconomic status, all type of anemia (dimorphic, macrocytic hypochromic and microcytic hypochromic) is more common in lower socioeconomic class in comparison to upper middle and upper class however it is statistically not significant.
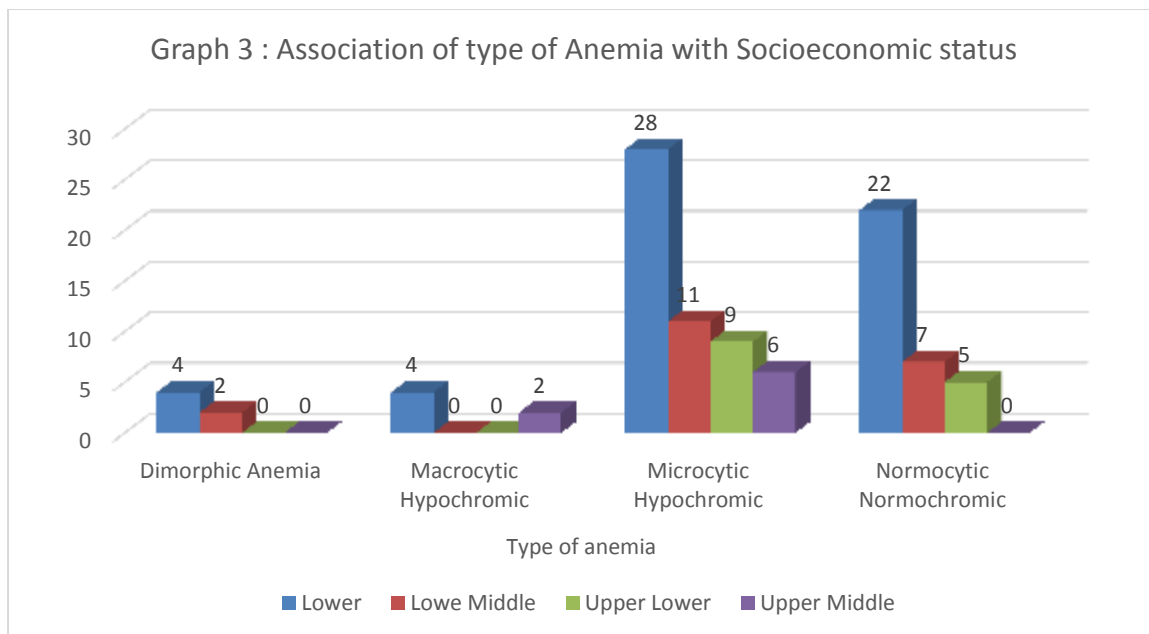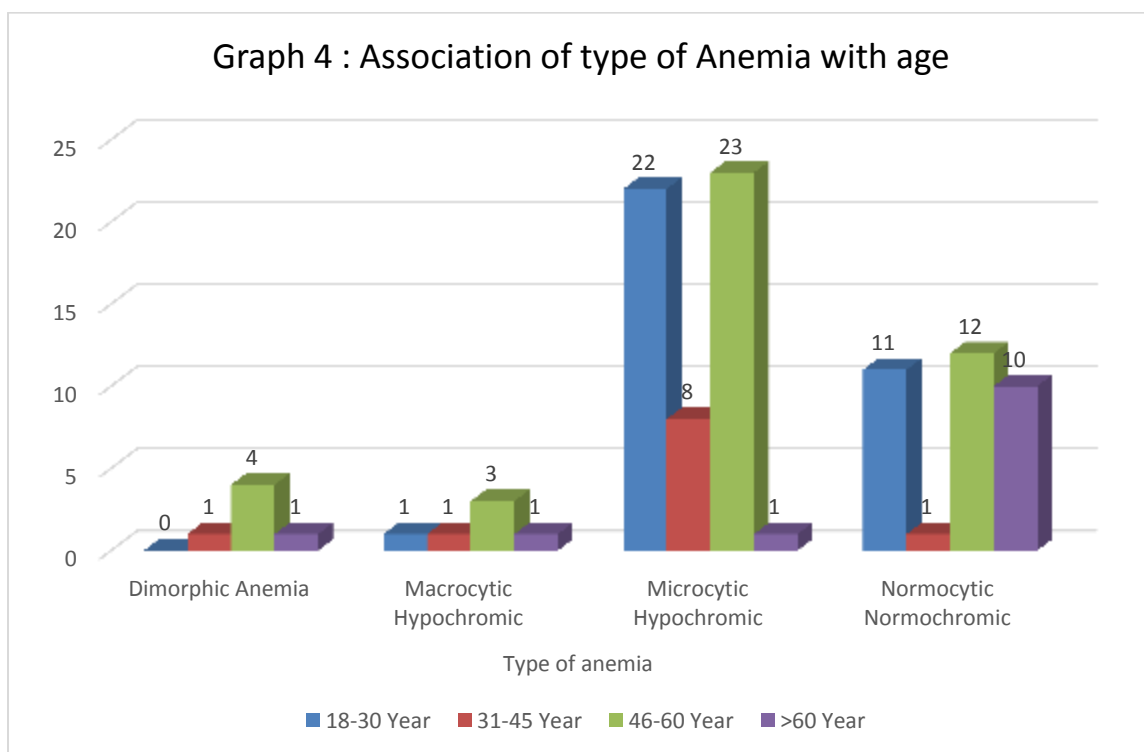
Graph 3 : Association of type of Anemia with Socioeconomic status

Table 4: Association of type of Anemia with age

Age Group	Type of anemia				P Value
	Dimorphic Anemia	Macrocytic Hypochromic	Microcytic Hypochromic	Normocytic Normochromic	
18-30 Year	0	1	22	11	
31-45 Year	1	1	8	1	
46-60 Year	4	3	23	12	0.018
>60 Year	1	1	1	10	
Total	6	6	54	34	

Graph 4 : Association of type of Anemia with age

Dimorphic and macrocytic hypochromic anemia is commoner among late middle age group population and microcytic hypochromic anemia shows bimodal trend in young adults and late middle age group population.

Table 5: Association of Morphological characteristics on peripheral blood smear with serum iron parameters

Variables		Type of anemia				P Value
		Dimorphic Anemia	Macrocytic Hypochromic	Microcytic Hypochromic	Normocytic Normochromic	
Ferritin	<22	5	0	51	1	0.000
	22-320	1	6	1	2	
	>322	0	0	2	31	
Total Serum Iron	<65	4	1	54	34	0.000
	65-175	2	5	0	0	
	>175	0	0	0	0	
Iron Binding Capacity	<250	2	0	0	33	0.000
	250-425	4	6	16	1	
	>425	0	0	38	0	
Total		6	6	54	34	100

Graph 5 : Association of type of Anemia with serum iron parameters
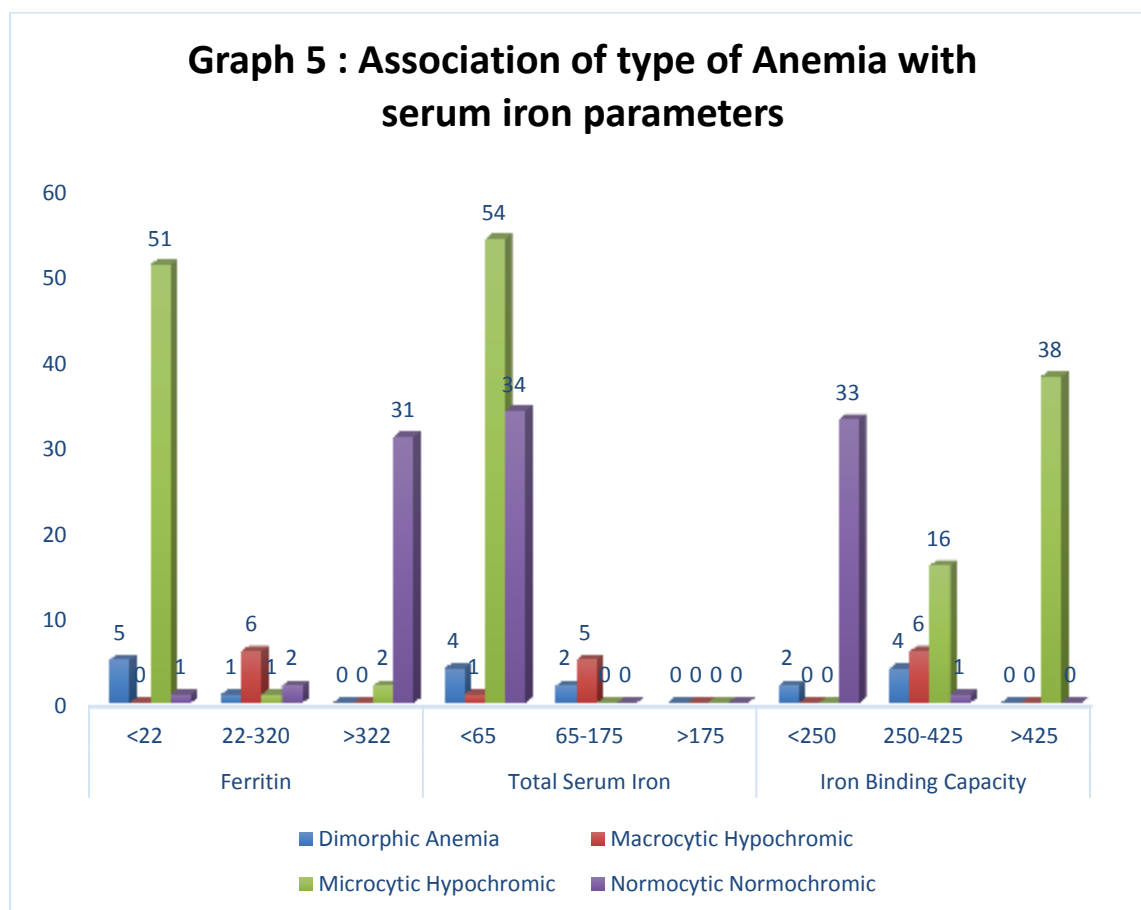
A significant association was observed between Morphological characteristics of peripheral blood smear and serum iron parameters. Serum ferritin level was lower among dimorphic and microcytic hypochromic anemia. similarly total serum was lower among dimorphic and

microcytic hypochromic anemia cases. Serum ferritin, total serum iron level and iron binding capacity was found within normal limit in macrocytic hypochromic anemia. iron binding capacity is significantly higher in microcytic hypochromic anemia.

Table 6: Association of type of Anemia with Diet, DM and HTN

Variables		Type of anemia				
		Dimorphic Anemia	Macrocytic Hypochromic	Microcytic Hypochromic	Normocytic Normochromic	P Value
Diet	Veg	4	4	12	10	0.026
	Mix	2	2	42	24	
DM	Yes	0	2	6	10	0.072
	No	6	4	48	24	
HTN	Yes	1	3	3	13	0.001
	No	5	3	51	21	
Total		6	6	54	34	100

Above table shows the association between type of anemia and Dietary pattern, DM and HTN. No association was found between type of anemia and Hypertension and Diabetes Mellitus.Diet play important role in Anemia.

Graph 6 : Association of type of Anemia with Diet, DM and HTN
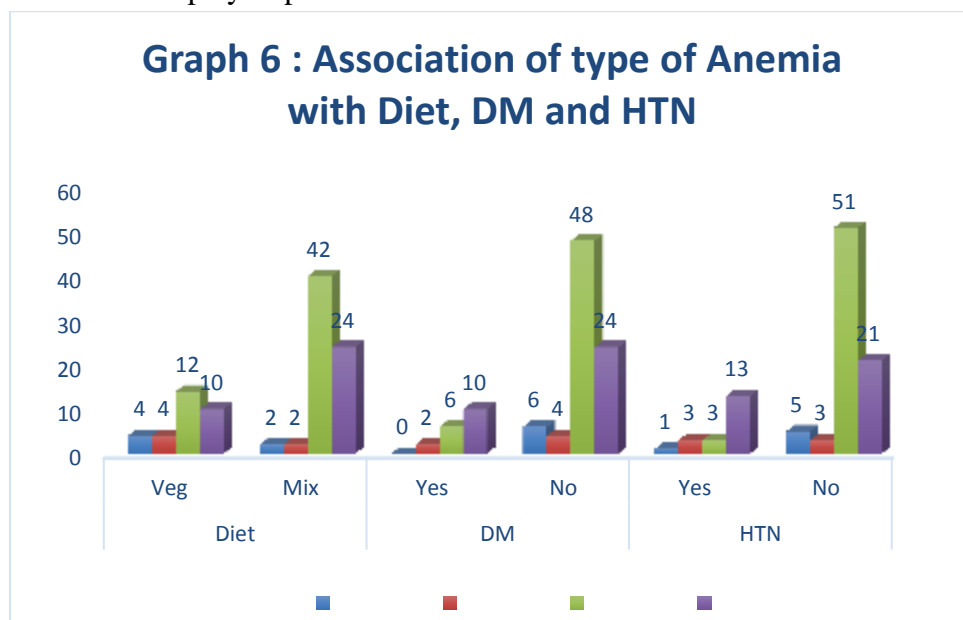
DISCUSSION

In present study, age wise distribution of participants there is a bimodal distribution of participants were observed among young adults (18-30 years) and late middle age group (46-60 years) age group. Maximum number of participants were in 46-60 years age group (42%). 34% of participants were in 18-30 years age group. Similar result was found by Pradip et al.[6] Similar result was found by Ratre BK.[7]

Anemia is more common in lower socioeconomic class in comparison to upper middle and upper class However it is statistically not significant. Pradeep et al found similar result.[6] Deb et al also found similar result in his study.[8]

In present study maximum subjects had microcytic hypochromic (54%) followed by normocytic normochromic (34%), macrocytic hypochromic and dimorphic anemia. Joshi P et

al also found most common type of anemia to be microcytic hypochromic followed by normocytic normochromic, macrocytic hypochromic and dimorphic anemia.[9]

A significant association was observed between type of anemia and serum iron parameters serum ferritin level was lower among dimorphic and microcytic hypochromic anemia. Similarly total serum iron was lower among dimorphic and microcytic hypochromic anemia cases. Serum ferritin, total serum iron level and iron binding capacity was found within normal limit in macrocytic hypochromic anemia. Iron binding capacity significantly higher in microcytic hypochromic anemia. J.B. Wish also found similar result.[10]

CONCLUSION

This study found that a bimodal distribution of participants was observed between young adults (18–30 years) and the late middle-aged group (46–60 years). Diet plays an important role in anemia. No significant role was found in chronic diseases such as diabetes and high blood pressure. Anemia is more common in the lower socioeconomic classes than in the upper middle and upper classes.

Measures should be taken to reduce the prevalence of anemia by addressing more common causes in this area, so that an improvement in health status can be initiated and the productivity of the population can be increased. Early detection can prevent the associated complications.

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