EPIDEMIOLOGICAL STUDY OF ANEMIA IN YOUNG AGE WOMEN AT DISTRICT GENERAL HOSPITAL AMRAVATI

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Abstract:
*Background:As 18 to 25 years age is the career building age, so this study will focus on important measures to be taken to avoid anemia and its complications, this may havehigh impact on life of the sufferer. **Objectives:**The present study includes determination of several factors which directly or indirectly influence the prevalence of anemia and observation is based on cases detected at District General Hospital, Amravati. **Materials and Methods:** The proposed study is supposed to reveal data regarding socioeconomic factors and dietary habits of the women suffering from anemia particularly at young age. **Result:**Iron deficiency anemia is the most common type in females having childbearing capacity of this area. Megaloblastic anemia is found in about half of the patients. **Conclusion:** The outcome of this study will help to prepare a well-balanced treatment plan for control of progression of the disease. Such kind of study will help strategic planning for rehabilitation of sufferers through consideration of prevalent factors.*
Keywords: *Anemia, Cellenium Analyzer, Prevalence, Iron deficiency anemia, Curative measures.*

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INTRODUCTION:

Anemia defined as hemoglobin (Hb) <13 g/dl in men or <12 g/dl in women (as recommended by the World Health Organization) occurs in approximately 3.5 million Americans based on self-reported data from the National Center for Health Statistics. It is estimated that millions of people are unaware they have anemia, making it one of the most under diagnosed conditions in the United States. The prevalence of iron-deficiency anemia has been stable in the last decade since the mid-1990s in the United States, with the highest rate in minority and poor children.[1] The highest prevalence is seen in women, African Americans, the elderly, and low-income persons. The importance of anemia often is overlooked and undertreated. Evidence suggests that anemia is not an innocent bystander; it can affect both length and quality of life. Retrospective observational studies in hemodialysis patients and heart failure patients suggest that anemia is an independent risk factor for mortality.[2] In addition, anemia significantly influences morbidity, as shown in patients with end-stage renal disease, chronic kidney disease, and heart failure.[3] Quality-of-life data in anemic patients are primarily based on studies in cancer patients.[4] Anemia is associated with psychomotor and cognitive abnormalities in children. Similarly, among adults, anemia is associated with cognitive dysfunction in patients with renal failure, those with cancer, and among community-dwelling elders.[5] During pregnancy, anemia has been associated with increased risk for low birth weights, preterm delivery, and perinatal mortality.[6,7] Maternal IDA may be associated with postpartum depression and poor performance by offspring on mental and psychomotor tests. The effect of treatment on patient outcomes must be the focus of research on each specific type of anemia. Global goals of treatment in anemic patients are to alleviate signs and symptoms, correct the underlying etiology, and prevent recurrence of anemia. Anemia are a group of diseases characterized by a decrease in either Hb or red blood cells (RBCs), resulting in reduced oxygen carrying capacity of the blood. Anemia can result from inadequate RBC production, increased RBC destruction, or blood loss. They can be a manifestation of a host of systemic disorders, such as infection, chronic renal disease, or malignancy. Because anemia is often a sign of underlying pathology, rapid diagnosis of the cause is essential.[8]

MATERIAL AND METHODS:

Research Design and Setting:
This was a prospective study carried out in Amravati District of Vidarbha Maharashtra, for the period of one year 2016-2017. A total of 151 patients were screened in complete one year period.

Data collection:
Data were collected from the individual patients and their respective CBC reports and case paper for treatment and blood transfusions given. Necessary consents as prerequisite were obtained from individuals before subjecting them to the tests.

Study subjects:
Inclusion criteria: Female patients of age group 18 to 25 years from Amravati district.
Exclusion criteria: Patients having thalassemia and sickle anemia are excluded.

Procedure:
Specimen collection and preparation-
Collect whole blood in an anticoagulant container containing (EDTA, sodium citrate, sodium or potassium oxalate or heparin). No restriction on food or fluids prior to testing is necessary. Sample is analyzed by Hematology Analyzer. [9] (Figure 1)

Parameters : WBC, LYM#, LYM%, MID#, MID%, NEU#,NEU%, RBC,HGB, MCV, HCT, MCH, MCHC, RDW-CV, RDW-SD, PLT.
Histogram for WBC, RBC, PLT distributions[10]

RESULTS:

In year 2016-2017, 151 female patients of age group 18 to 25 years who were admitted in District General Hospital Amravati who having Hb below 10g/dl on CBC reports obtained from the laboratory are selected for interviewing. All the needed parameters are collected from the case reports. The details of data is represented in Table-1.On observation and analysing the CBC reports of all female anemic patients of age group 18 to 25 years, following results were obtained.

On the basis of MCV values it is found that 81.45 % patients have microcytic, 15.89% have normocytic and 2.64 % have macrocytic anemia. On the basis of MCH values it is found that 83.44% patients have microcytic, 14.56% have normocytic and 1.98% have macrocytic anemia.(Table 2)

On the basis of haemoglobin, it is found that 74 patients are in the range of Hb 0 to 5 g/dl, 76 patients are in the range of 5 to 10 g/dl and 1patient have Hb above 10g/dl. On the basis of RBC, 28 are in the range of 0 to 2 million/cumm, 95 are in the range of 2 to 4 million/cumm and 28 are in the range of 4 to 6 million/cumm.(Table 3)

According to normal range of RDW CV, it is found that 1 patient is of anisocytic anemia, 63 are normal and 89 having megaloblastic anemia. (Figure 2)

Among total patients who conceived in their life, those who having age above 20 years are severe anemic.(Table 4)

Jaundice is more commom risk factor for anemia in 13 (38%)patients. 9 patients (26%) have past history of anemia with or without blood transfusions. Patients having history of Malaria were 8(24%). Patients having risk factor as blood loss are about 4 (12%).(Figure 3)

No significant relationship was found between dietary habits and incidence of anemia. (Figure 4) Among all admited patients 42 were pregnant and 109 were non pregnant.In most pregnant patient the Hb level was too low i.e. within 0 to 5g/dl as compared to non pregnant patients.(Table 5)

Among 151 patients in 96 patients blood transfusion is done. Out of which 60 patients (40%) got 1 BT, 27 patients (18%) got 2 BT , 6 patients (4%) got 3 BT and 3 patients (2%) got 4 and above BT in whole life. It is found that most of the

admitted anemic patients need Blood transfusions. (Figure 5)

88% patients have their monthly income in range of Rs.5000 to Rs.10000. Only 12% patients have somewhat good economic condition i.e. up to Rs. 30000. (Figure 6)

51% i.e. 77 patients belong to rural area. 49 % i.e. 74 patients belong to urban area.

There is no significant relationship found between menstrual status and incidence of anemia. 82.11% patients have normal menstruation while other having irregular and heavy menstruation. (Table 6) Incidence rate of anemia is more found in a patient having education below graduation. (Figure 7) Out of 151 patients, 43% were housewives and 25% were students. (Figure 8)

Table 1: Details of Data

no.	Age	Address(urban/ruraArea)	Occupation	Mon income below	Education	Pregnancy(yes/no)	No. of child	1st delivery age	Diet(mix/vegan)	Hb	RBC	WBC	RDW CV	MCHC	MCH	MCV	BT	Menses	medical history
1	25	u	coolie	5000	prim	n	2	22	m	4.9	1.8	1.9	13	30	28	93.4	1	heavy	not significant
2	21	u	Student	10000	Sec	y	0	0	v	4.3	3.2	6	19	25	14	55.1	1	irregular	not significant
3	25	u	coolie	5000	prim	n	2	18	v	6.8	2.7	6.7	17	31	25	80	0	normal	not significant
4	22	u	Student	10000	Grad	n	0	0	m	6.2	2.3	5	17	33	21	80.1	1	normal	jaundice
5	24	u	coolie	5000	high	n	0	0	m	3.2	1.8	4.8	19	25	18	72	1	normal	blood loss
6	18	u	student	10000	high	n	0	0	m	4.2	1.3	4.9	19	38	34	88.6	0	normal	jaundice
7	25	u	HW	10000	high	n	2	21	m	2.7	1.3	5	17	27	21	76.1	2	normal	not significant
8	20	r	HW	10000	high	n	0	0	v	2.5	1.7	7.2	19	23	14	62.1	2	normal	not significant
9	19	u	coolie	5000	high	n	0	0	v	2.5	1.8	1.8	19	24	14	58.3	0	normal	not significant
10	18	u	Student	10000	Sec	n	0	0	v	6.1	3.5	12	17	30	18	56	0	normal	jaundice
11	25	u	coolie	5000	prim	n	2	22	m	3.1	2.7	4	32	21	12	59.9	3	heavy	other
12	25	r	HW	10000	high	n	0	0	m	6.1	4	6.5	20	26	15	58.7	2	normal	not significant
13	25	r	coolie	5000	prim	n	1	23	m	3.4	2.1	1.1	18	32	26	64.3	1	normal	HIV
14	22	r	govt.	10000	high	n	0	0	m	3.6	3.9	3.6	24	27	18	66.1	2	amno	not significant
15	25	u	HW	10000	Sec	y	1	22	m	9.2	4	7.5	18	30	23	77	0	normal	not significant
16	25	r	HW	10000	NFE	n	0	0	v	7.2	3.4	7.2	18	30	21	70.6	1	normal	Malaria

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17	25	u	HW	10000	Sec	n	0	0	m	2.2	0.8	37	15	32	29	89.9	4	normal	jaundice,malaria,apt
18	18	u	Student	10000	high	n	0	0	v	3.5	2.2	3.9	17	25	16	63.3	1	irregular	jaundice
19	20	u	Student	10000	high	n	0	0	m	4	2.5	7.4	28	27	16	60.1	1	normal	not significant
20	18	u	Student	10000	high	n	0	0	v	4.3	1.5	4.2	14	32	28	88.9	2	normal	not significant
21	24	r	HW	10000	high	n	1	21	v	3.8	2.2	9.2	17	28	17	61.5	2	normal	not significant
22	24	r	HW	10000	prim	n	2	18	m	4.1	2.2	6.7	15	28	19	66.8	1	normal	other
23	24	r	coolie	5000	high	y	2	22	v	5.3	2.8	5.6	18	29	19	66.1	1	normal	TB,malaria.
24	19	r	HW	10000	high	y	0	0	v	4.8	3.1	5.5	17	26	15	58	1	normal	jaundice
25	18	r	Student	10000	Sec	n	0	0	m	3.5	2.6	4.2	15	24	13	55	0	normal	other
26	19	r	Student	10000	high	n	0	0	v	9.2	4.2	7.3	21	33	22	65.7	1	normal	other
27	22	r	coolie	5000	Sec	n	3	18	v	6.5	2.5	15	14	39	26	66.7	0	normal	jaundice
28	24	r	coolie	5000	prim	n	3	18	m	4.8	2.8	4.6	19	27	17	65.2	1	normal	malaria
29	20	u	Student	10000	Grad	n	0	0	v	6.7	3.7	5.3	20	27	18	66	0	normal	other
30	18	u	Student	10000	high	n	0	0	v	3.9	1	2.4	17	36	38	104	0	normal	other
31	23	r	coolie	5000	prim	y	3	17	m	3.4	1.6	4	21	27	21	79.1	1	normal	not significant
32	18	u	Student	20000	high	n	0	0	v	4.6	2.3	5.4	17	30	18	73.5	1	normal	BT
33	24	u	HW	30000	prim	y	0	0	v	3.2	2.9	7.3	21	28	18	65.3	3	normal	BT
34	20	u	HW	10000	Sec	y	0	0	v	1.7	1	13	18	28	18	62.5	3	normal	jaundice
35	24	u	HW	10000	prim	n	0	0	v	6.8	4.7	2.3	12	22	19	67.7	1	normal	BT
36	19	r	Student	30000	high	n	0	0	v	3.8	2.3	2.7	16	25	16	65.6	1	normal	blood loss
37	19	u	Student	10000	high	n	0	0	m	9.6	4	1.8	18	32	24	76.6	1	normal	not significant
38	18	r	Student	10000	high	n	0	0	m	3.1	2.1	18	18	29	16	74.9	2	normal	not significant
39	19	r	Student	10000	Grad	n	0	0	v	6.5	3.1	6.1	20	29	21	72.8	1	normal	not significant
40	20	u	HW	10000	high	y	0	0	m	2.1	2.3	1.4	18	24	17	74.4	2	normal	not significant
41	19	u	Student	10000	high	n	0	0	m	2.9	1.2	4	17	31	25	80.7	1	normal	other
42	23	u	govt.	10000	high	y	1	20	m	6.2	2.8	5.2	18	28	22	76.9	2	normal	BT,jaundice
43	24	u	farming	10000	Sec	y	3	19	m	6.8	2.4	6.4	17	27	21	75.7	0	normal	other
44	24	r	farming	30000	prim	y	1	22	m	4.5	4.3	7.1	19	29	22	75	1	normal	not significant
45	18	r	coolie	5000	prim	n	0	0	m	5.1	2.6	8.1	19	21	21	76.4	1	normal	jaundice
46	18	r	farming	10000	prim	n	0	0	m	3.2	2.3	6.3	23	26	16	64.6	2	normal	not significant
47	18	u	HW	10000	high	n	0	0	v	7.4	2.5	7.7	26	23	19	60.6	0	normal	not significant
48	25	r	HW	10000	Sec	n	3	18	v	5.8	2.4	7.6	22	28	17	60.6	1	normal	not significant
49	25	u	farming	10000	prim	n	1	23	m	5.5	3.1	5.3	13	25	17	72	0	normal	not significant
50	22	u	HW	10000	prim	n	1	22	m	5.2	3.2	6	15	24	16	68.3	2	normal	other

51	25	u	govt.	10000	high	n	3	21	m	7.7	3.2	3.9	15	28	24	86	0	normal	not significant
52	18	r	Student	10000	high	n	0	0	m	7.7	3.4	8.6	15	27	23	86.3	0	normal	other
53	24	r	HW	10000	high	y	1	23	m	3	2.2	4.5	14	25	14	56.2	2	normal	not significant
54	25	u	HW	10000	prim	y	1	22	m	7.8	3.7	7.3	14	33	21	63	1	normal	not significant
55	25	r	govt.	10000	high	n	0	0	v	8.1	3	1.2	13	35	27	76.4	1	normal	BT
56	25	u	HW	10000	NFE	n	2	20	v	2.6	0.7	1.6	20	33	34	106	1	normal	not significant
57	24	r	farming	10000	prim	n	0	0	m	9.5	4.3	1.8	13	32	31	66.1	0	normal	not significant
58	24	u	HW	30000	Grad	n	1	23	m	6.5	3.2	11	16	31	20	66.4	1	normal	not significant
59	20	u	Student	10000	Grad	n	0	0	m	9.4	3.6	3.8	12	35	26	75.8	0	normal	BT
60	25	u	coolie	5000	prim	n	3	22	v	5.6	4.4	2	13	22	13	57.6	1	normal	BT
61	23	r	farming	20000	prim	y	1	22	m	4.5	4.3	7.1	19	29	22	75	1	normal	not significant
62	18	r	Student	10000	high	n	0	0	m	6.2	4.3	18	13	28	20	77.3	2	normal	not significant
63	19	r	HW	10000	high	y	0	0	v	4.8	3.1	5.5	15	26	15	58	1	normal	jaundice
64	20	r	HW	10000	high	n	0	0	v	2.5	1.7	7.2	15	23	14	62.1	2	normal	not significant
65	23	u	farming	10000	prim	n	1	21	m	2.8	2.3	2.6	29	21	12	58.3	0	heavy	BT
66	18	u	Student	10000	high	n	0	0	v	3.2	3.8	4	15	40	25	10	1	normal	BT
67	23	u	HW	10000	prim	y	2	19	m	5.6	4.8	3	12	34	28	10	1	normal	not significant
68	21	r	HW	10000	prim	y	1	15	v	4.5	4.5	4	13	45	26	15	1	normal	not significant
69	20	u	HW	10000	Sec	y	0	0	v	7.6	4.2	8.6	23	27	18	67	0	normal	not significant
70	23	u	coolie	5000	prim	n	2	21	m	3.6	2.6	3	17	23	14	61.8	1	normal	blood loss
71	23	u	farming	10000	prim	n	2	20	m	7.9	3.4	4.9	18	30	23	77.7	0	normal	not significant
72	24	r	farming	10000	prim	n	1	22	v	6.7	3.8	10	20	27	20	73.7	0	normal	other
73	23	r	farming	10000	prim	n	2	19	v	9.3	4.3	7.1	16	26	22	81.8	0	normal	not significant
74	23	r	HW	10000	prim	n	1	16	v	6.9	3.3	9.8	16	25	21	82.8	3	normal	not significant
75	23	r	coolie	5000	prim	n	2	21	v	5.2	2.5	4.2	12	25	20	82.7	0	normal	not significant
76	18	u	Student	30000	high	n	0	0	m	9.5	3.9	5.6	18	31	24	78.5	0	heavy	other
77	24	r	HW	10000	prim	n	1	23	m	6.6	3.5	2.9	28	26	19	72.3	1	normal	not significant
78	23	u	coolie	5000	NFE	n	0	0	m	7.7	4.1	1.7	14	25	18	73.2	0	amno	other
79	21	r	farming	10000	prim	n	1	21	m	5.5	2.3	3.5	15	26	11	73.2	1	normal	not significant
80	23	r	HW	10000	prim	n	3	18	v	4.5	3.3	3.3	13	19	17	66.5	0	heavy	malaria
81	20	u	Student	20000	Grad	n	0	0	v	6.5	2.4	8	13	31	27	87.3	0	normal	other
82	23	r	HW	10000	NFE	n	0	0	v	6.4	2.5	11	15	29	25	87.8	0	normal	other

83	23	r	farming	10000	high	n	1	22	v	2.3	2.3	4.2	15	17	10	59.7	2	normal	not significant
84	18	r	Student	10000	high	n	0	0	v	8.7	3.3	4.6	16	31	26	28.3	0	normal	not significant
85	23	u	HW	10000	prim	n	3	18	v	2.6	0.7	1.6	20	33	34	106	1	normal	not significant
86	23	u	HW	10000	prim	y	2	13	v	7.7	4.2	2.5	16	27	18	67.7	1	heavy	other
87	23	u	HW	10000	high	n	2	20	m	10	4	4	12	33	26	78.4	0	normal	jaundice
88	25	r	farming	10000	Sec	n	1	25	m	9	3.5	2.4	10	32	27	70.2	0	normal	other
89	25	u	HW	10000	high	n	2	22	v	9.5	4.3	3.3	12	32	22	69	0	normal	not significant
90	25	r	coolie	5000	prim	n	2	20	v	4.5	3.5	4.1	17	16	13	81.5	0	heavy	not significant
91	25	u	HW	10000	prim	n	2	20	m	8.7	4.7	2.2	13	26	19	72.2	0	normal	other
92	25	u	coolie	5000	prim	n	3	19	m	5.2	4.3	1.7	25	21	13	64.2	0	normal	not significant
93	20	r	coolie	5000	high	y	0	0	m	7.3	4.5	11	23	24	16	66.9	1	normal	not significant
94	25	u	farming	10000	Sec	y	2	22	v	3.7	2.9	4.3	33	24	13	53.3	2	normal	not significant
95	18	r	Student	10000	prim	n	0	0	v	1.9	1.3	5.5	26	23	14	62.3	1	normal	blood loss
96	25	u	HW	10000	prim	n	3	20	m	4.4	2.5	8.7	23	26	18	67.5	2	normal	other
97	23	u	HW	30000	high	n	0	0	m	5.9	2.6	2	18	30	23	77.4	1	irregular	not significant
98	20	u	HW	5000	high	n	1	19	m	5.2	4.3	1.7	25	21	13	64.2	1	normal	not significant
99	25	r	HW	10000	Sec	n	2	22	m	3.1	1.2	4.8	22	32	25	78.9	0	normal	not significant
100	19	u	Student	10000	Grad	n	0	0	m	1.9	1.8	8.8	16	20	11	55.8	4	normal	not significant
101	25	r	HW	5000	high	y	1	23	m	6.9	4.3	3.6	15	22	16	74	1	normal	not significant
102	20	u	Student	10000	Grad	n	0	0	m	4.9	2	5.3	23	35	34	109	1	irregular	not significant
103	25	r	coolie	5000	high	n	2	22	v	5.6	2.2	2	14	58	12	77.4	0	normal	not significant
104	24	r	HW	10000	high	n	1	22	m	3.2	3.9	8.3	21	15	11	63.2	2	normal	jaundice
105	18	u	Student	20000	Grad	n	0	0	m	9.3	4.4	11	15	25	21	84	0	normal	not significant
106	24	r	HW	5000	high	y	1	21	m	5.5	3.6	6.2	19	21	15	74.1	1	normal	not significant
107	25	r	coolie	5000	Sec	y	2	20	m	3.2	2.9	7.3	21	28	18	65.3	2	irregular	other
108	25	r	HW	5000	Sec	n	2	21	v	8.5	3.1	3.5	11	26	27	33.6	0	normal	not significant
109	25	u	HW	20000	high	y	1	23	m	3.2	3.8	1.3	15	40	25	59.6	1	normal	not significant
110	24	u	HW	5000	high	n	1	20	m	5.7	3.2	7.1	17	22	18	79.4	1	irregular	other
111	23	u	coolie	10000	Sec	y	0	0	m	6.7	3.2	3	20	28	20	73.8	0	normal	other
112	21	r	HW	5000	Sec	y	0	0	v	4.9	1.8	1.9	13	30	28	93.4	1	normal	not significant
113	17	r	coolie	5000	prim	n	0	0	m	5.1	4.1	11	19	34	15	74	2	irregular	not significant

114	17	u	Student	20000	high	n	0	0	m	3.1	1.2	4.7	22	32	24	78.9	2	irregular	malaria
115	19	r	HW	5000	prim	y	0	0	m	2	0.9	2.4	20	28	23	81.7	3	normal	not significant
116	25	r	coolie	5000	high	n	2	20	m	3.2	1.7	3.7	18	25	19	72.7	2	normal	not significant
117	24	r	HW	10000	high	y	1	22	m	4.5	3	1.4	14	24	15	63.6	1	normal	other
118	20	r	HW	10000	Sec	n	1	18	v	6	2.3	0.9	13	28	26	92.2	0	normal	not significant
119	25	r	coolie	10000	prim	n	1	23	m	5.9	3.5	11	14	26	17	65.7	1	normal	not significant
120	24	u	HW	20000	high	y	0	0	m	6.2	3.4	9.4	27	28	21	76.4	0	normal	not significant
121	18	u	Student	20000	high	n	0	0	v	3.1	1.2	4.8	22	32	25	78.9	2	irregular	not significant
122	25	r	coolie	10000	high	y	1	23	m	5.9	2.4	3.5	14	26	17	69.8	1	normal	not significant
123	21	r	HW	5000	prim	y	0	0	m	6.2	2.2	2.4	16	33	29	87.3	0	normal	other
124	22	r	coolie	5000	prim	y	0	0	m	8.1	3.6	4.7	14	31	22	71.7	0	normal	not significant
125	25	r	HW	5000	high	n	2	20	m	5.6	4.1	2.8	33	25	14	53.7	1	normal	other
126	25	r	HW	20000	high	y	1	22	v	4.7	1.7	1.6	15	33	28	85.3	2	normal	not significant
127	25	u	HW	5000	Sec	n	2	19	m	6.2	3.1	6.2	12	30	20	67	0	irregular	other
128	25	u	govt.	20000	Grad	y	1	22	m	3.6	2.4	6	16	25	14	57.7	2	normal	not significant
129	19	r	coolie	5000	Sec	y	0	0	v	1.9	1.8	3.4	22	15	17	55.7	3	normal	not significant
130	21	r	Student	20000	Grad	n	0	0	m	4.6	2.4	11	16	25	19	76.1	1	irregular	malaria
131	20	u	Student	20000	high	n	0	0	m	4.4	1.7	1.5	15	31	28	83.3	1	irregular	not significant
132	25	u	coolie	5000	high	n	0	0	m	6.5	4.3	5.4	16	23	15	65.4	0	normal	not significant
133	20	u	Student	10000	high	n	0	0	v	4.3	3.3	3.3	14	22	13	58.1	1	normal	not significant
134	20	r	HW	5000	prim	n	0	0	v	5.2	3.3	4.2	22	13	3.3	44.3	1	normal	not significant
135	24	r	HW	5000	prim	y	0	0	m	2.8	4.3	16	21	18	13	70.9	1	normal	not significant
136	24	r	coolie	5000	prim	y	2	18	m	4.4	3.3	7	18	17	13	77.9	1	normal	not significant
137	25	r	HW	10000	high	n	0	0	m	9.6	4	4	16	30	19	21.5	0	irregular	not significant
138	20	u	HW	5000	high	n	0	0	m	8.5	5.1	9	20	24	17	23.9	0	irregular	hypertension
139	21	u	HW	5000	high	n	0	0	m	4.6	2.6	22	23	18	20	55	1	irregular	malaria
140	21	u	HW	5000	high	y	0	0	m	3.9	1.7	2.1	11	79	23	78.3	2	irregular	not significant
141	15	u	Student	5000	prim	n	0	0	m	4.3	3.3	2.3	49	13	14	46.4	0	normal	not significant
142	22	u	HW	5000	prim	y	0	0	v	5.3	3.3	3.3	14	22	15	50	0	irregular	not significant
143	19	u	HW	5000	prim	y	2	0	v	6.5	3.6	4.9	14	26	24	91.4	0	irregular	not significant

144	19	r	HW	5000	prim	y	1	0	m	4.5	3.3	2.4	15	33	30	44.2	1	normal	hypertension
145	23	r	HW	5000	high	n	0	0	m	4.6	3.3	5.5	17	30	13	14.8	0	normal	not significant
146	23	r	HW	5000	prim	n	0	0	m	3.3	2.5	11	16	52	19	28.3	2	normal	not significant
147	18	r	Student	5000	high	n	0	0	m	4.3	3.2	6.4	17	21	28	55.3	1	normal	not significant
148	20	r	Student	5000	high	n	0	0	m	4.3	3.3	4.5	13	36	26	92.4	0	normal	not significant
149	18	r	coolie	5000	prim	n	0	0	v	8.1	3.4	4.5	15	28	24	84.8	0	normal	not significant
150	16	r	Student	5000	prim	n	0	0	v	5.5	2.9	6.7	14	26	19	74	0	normal	not significant
151	15	r	Student	5000	prim	n	0	0	v	6.7	4.4	3.6	14	25	15	61.6	0	normal	not significant

Fig. 1: Cellenium Analyer
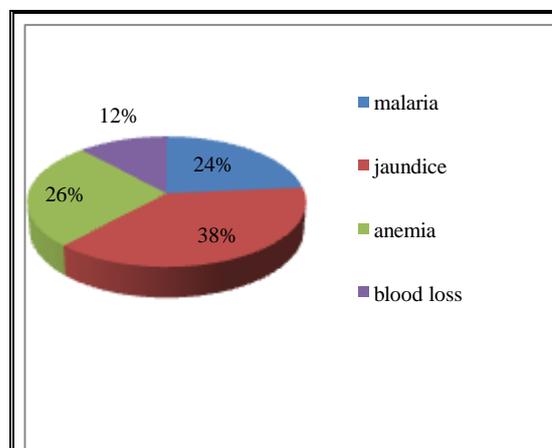
Fig. 3: Medical history-wise distribution
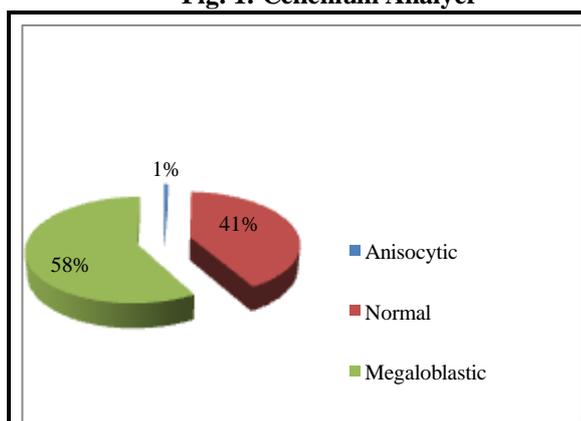
Fig. 2:RDW CV -wise distribution
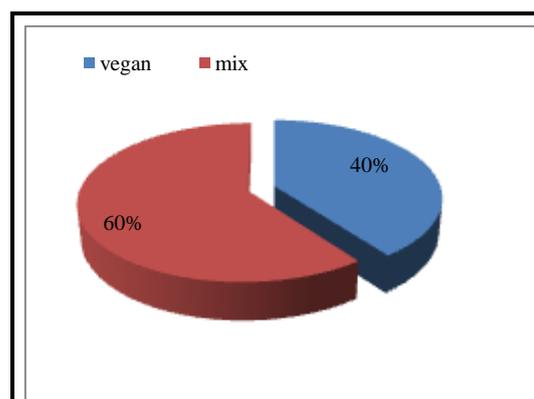
Fig. 4: Dietary habit-wise distribution
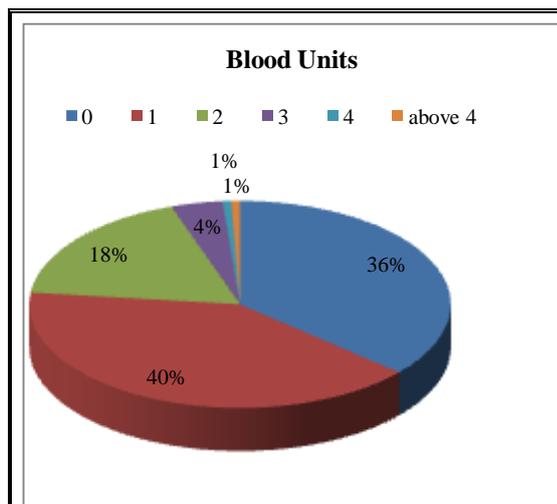
Fig.5: Blood transfusion-wise distribution
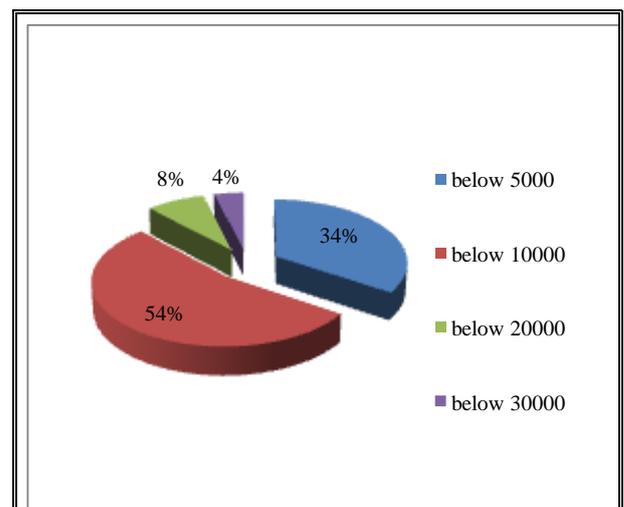
Fig. 6: Income-wise distribution
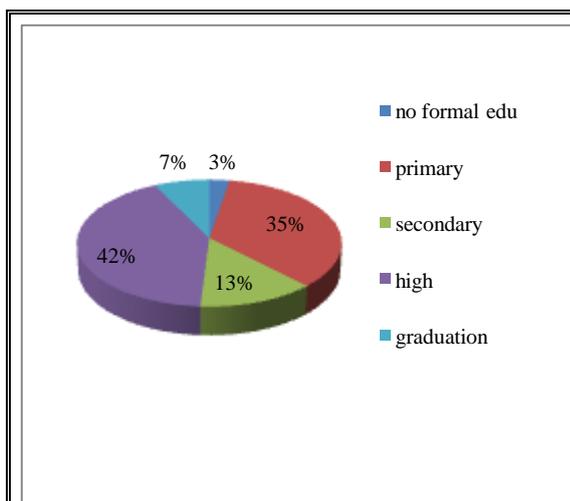
Fig. 7: Education-wise distribution

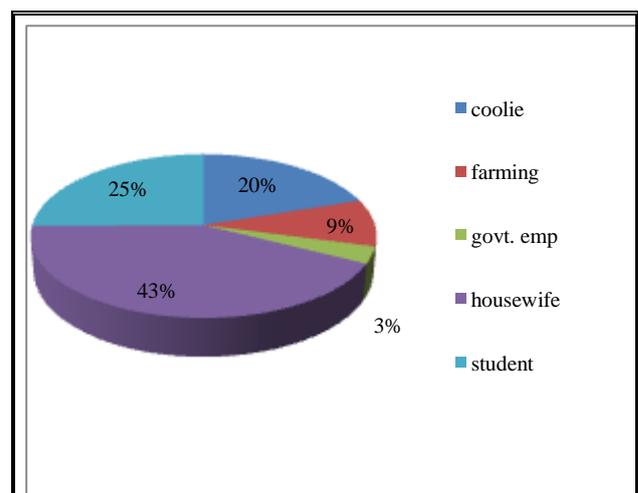**Fig. 8: Occupation-wise Distribution**

Table 2:Morphological distribution of anemia

Parameters	Microcytic	Normocytic	Macrocytic
MCV	123(81.45%)	24(15.89%)	4(2.64%)
MCH	126(83.44%)	22(14.56%)	3(1.98%)

Table 3: Severity-wise distribution of anemia

Parameters	severe	moderate	mild
Hb	74 (49%)	76 (50.33%)	1 (0.66%)
CBC	28 (18.54%)	95 (62.91%)	28 (18.54%)

Table 4: Age at first delivery-wise Hb distribution

Hb	0 to 5g/dl	5 to 10g/dl	> 10g/dl
below 20 yrs	12	17	1
above 20 yrs	18	20	0

Table 5: Pregnancy-wise Hb distribution

Hb	0-5g/dl	5-10g/dl	> 10g/dl
pregnant	24	18	0
non pregnant	50	58	1

Table 6: Menstrual status-wise distribution

Menstrual condition	No. of patients
Normal	124 (82.11%)
amnorrhea	2 (1.32%)
irregular	18 (11.92%)
heavy	7 (4.63%)

DISCUSSION:

From the morphological parameters of cells i.e. MCH and MCV it is found that microcytic anemia is more common than macrocytic anemia which may be due to Iron deficiency or other hemoglobinopathies (abnormal hemoglobins). From hemoglobin parameter, most of the cases are severe as well as moderate anemic. Also megaloblastic anemia is more common. The conceiving age should be less to prevent the chances of anemia. Those having Jaundice and Malaria in their past history have more chances of anemia. The relation between dietary habits and anemia is strongly known that those having high protein diet have less chances of anemia, but here, those who were eating meat also has anemia may be due to other underlying causes. Chances of severe anemia increases during pregnancy. Therapeutic aspects of anemia should be oral and intravenous vitamins supplements and exercise after changing dietary habits. Blood Transfusion should be the last option for pregnant females as well as surgical cases as it may increases the cost as well as risk of disease transmission if contaminated blood is used. Income affects the living standard, hygiene and diet as well, as anemic females having less income are more in number. As it is found that females from Dharni or Melghat region are mostly admitted for pregnancy induced or hepatitis induced anemia. As the students need good health for better concentration and results and indirectly jobs their nutritional status should be developed

Counseling:

The above data is of 2016-2017 and has been collected in detail through the questionnaires and CBC reports. All patients were counseled about dietary habits, physical exercise and personal hygiene.

Treatment :

All patients were given oral Iron supplements like ferrous sulphate along with Folic acid and Multivitamin B complex supplements once daily during hospitalization days and 5 days after discharge. Those having Hb less than 6 g/dl were given Blood transfusions along with oral supplements.

LIST OF SYMBOLS:

%: Percentage

< >: less than/greater than

ABBREVIATIONS

Apt A: aplastic anemia BT: Blood transfusion CBC: complete blood count CV: Cell volume EDTA: Ethylenediaminetetraacetic acid g/dl:gram per decilitre   Grad: graduation Hb/HGB: hemoglobin Hct : hematocrit HW: housewife IDA: iron-deficiency anemia   MCH: mean corpuscular hemoglobin MCHC: mean corpuscular hemoglobin concentration   MCV: mean corpuscular volume MID: Mid cells Mon: monthly NEU: Neutrophils NFE: no formal education n: no Prim: primary PLT: Platelet RBC: red blood cell RDW: red blood cell distribution width   SD: Standard deviation Sec: secondary WBC: White blood cells LYM: Lymphocytes ,y: yes

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