To Analyze Hematological Parameters Like CBC, Peripheral Smear, Red Cell Indices in Anaemia in Males

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Abstract:

Background &Method: Present study is conducted with an aim to analyzehematological parameters like CBC, Peripheral smear, Red cell indices in anaemia in males. Blood was withdrawn from an cubital vein by mean of dry sterile 5mldisposable plastic syringe with a needle of 20 guage after preparing the cubital fossa with a sterile swab, 3ml of blood was withdraw slowly, immediately blood is transferred to sterile tube with di-potassium EDTA as anticoagulant.

Result:101 Cases having MCH level <20 pg showed hypochromic picture in 100% cases. 132 cases having MCH level 20-27 pg showed hypochromic picture in (47.6%) cases, (4.8%) cases showed normochromic picture and dimorphic picture was seen only in 1 case (0.4%). 17 cases having MCH level >27 pg showed normochromic picture in 14 cases (5.6%), (0.8%) cases showed hypochromic picture and dimorphic picture was seen in (0.4%) cases. The distribution significantly varied with MCH levels (p value <0.05).

Conclusion: In the present study of pediatric cases 0-5 years age group males were most affected and prevalence was more in males as compared to females and the predominant morphological pattern was microcytic hypochromic anaemia. Hence, it is recommended that, this age group is compulsorily screened for anaemia. Study of morphological pattern of anaemia directs us to the further management of underlying etiology.

Keywords:anaemia, morphologically, age and sex.

Study Designed: Observational Study.

1. INTRODUCTION

Worldwide, Anaemia is a significant problem and especially in developing countries it is widespread yet the most neglected micronutrient deficiency disorder among males, adolescent girls. The World Health Organization (WHO) has suggested levels of Hb below which anaemia is said to be present. These levels are <11 g/dL in males aged 6-59 months, <11.5 g/dL in males aged 5-11 years and 12 g/dL in older males (aged 12-14).[1]
Anaemia in males is one of the major social health problems in India and in many parts of the world, since anaemic males have reduced exercise capacity, slower rate of growth, impaired cognitive development, and delayed wound healing.[2] Anaemic males are also at an increased

risk of dying due to complications associated with malnutrition and infection. Prevalence rate of anaemia is an important indicator of the nutritional status within the pediatric population. Globally 1.62 billion people are anaemic, while among the preschool males the prevalence of anaemia is 47.4%[3]. In India, about 89 million males are anaemic[4]. Thus, India is the highest contributor to child anaemia among the developing countries [5].

Anaemia is considered as a proxy indicator of iron deficiency. Iron deficiency anaemia affects the physical and mental development of the human body. For instance, many studies have shown that iron deficiency reduces the learning capacity of the males aged below five years, decreases attentiveness, and causes low intelligence[2].

2. MATERIAL & METHOD

It is a hospital based cross sectional study. Males who attended various departmental OPDs at Government Medical College, Datia from June 2020 to December 2020, and inpatients participated in this study as per the inclusion and exclusion criteria.

Blood was withdrawn from an cubital vein by mean of dry sterile 5mldisposable plastic syringe with a needle of 20 guage after preparing the cubital fossa with a sterile swab, 3ml of blood was withdraw slowly, immediately blood is transferred to sterile tube with di-potassium EDTA as anticoagulant.

All the blood samples from males below 15 years reported by the Department in our institution during the study period.

INCLUSION CRITERIA
All males of:
1. Those males with hemoglobin < 11gm/dl.
2. Age group: below 15 years.
3. Patients who full fill the WHO criteria for Anaemia.

EXCLUSION CRITERIA:-
1. Males above 15 year of age
2. Hemoglobin above 11 gm/dl

3. RESULTS

Table 1: Age wise Distribution of Cases according to Hemoglobin level

Hb Grading	Age Group						Total	
	0-5 years		6-10 years		11-15 years			
	No.	%	No.	%	No.	%	No.	%
Mild	31	12.4	25	10	21	8.4	77	30.8
Moderate	81	32.4	35	14	29	11.6	145	58
Severe	18	7.2	6	2.4	4	1.6	28	11.2
Total	130	52	66	26.4	54	21.6	250	100

P-Value = 0.0078

Out of 250 cases, (30.8%) had mild anaemia, (58%) caseshad moderate anaemia and (11.2%)cases had severe anaemia. The distribution of severity of anaemia varied significantly between the age groups (P-value<0.01).

Table 2: Age wise Distribution of Cases according to Mean Corpuscular Hemoglobin(MCH)
Unit= picogram (pg)

| MCH Group | Age Group | | | | | | Total | |
| | 0-5 years | | 6-10 years | | 11-15 years | | | |
	No.	%	No.	%	No.	%	No.	%
< 20 pg	62	24.8	21	8.4	21	8.4	104	41.6
20-27 pg	56	22.4	32	12.8	34	13.6	122	48.8
> 27 pg	09	3.6	05	02	10	04	24	9.6
Total	127	50.8	58	23.2	65	26	250	100

P-Value = 0.0021

Out of 250 cases, (9.6%) cases had >27pg MCH, (48.80%) cases had MCH between 20-27pg and (41.60%) cases had <20pg MCH level. The distribution of MCH with age varied significantly (p value <0.05).

Table 3: Mean Corpuscular Hemoglobin (MCH) according to Peripheral Smear (RBC Chromasia) Finding

| Peripheral Smear (RBC Chromasia) Finding | MCH Group | | | | | | Total | |
| | > 27 pg | | 20-27 pg | | < 20 pg | | | |
	No.	%	No.	%	No.	%	No.	%
Dimorphic	01	0.4	01	0.4	00	00	02	0.8
Hypochromic	02	0.8	119	47.6	101	40.4	222	88.8
Normochromic	14	5.6	12	4.8	00	00	26	10.4
Total	17	6.8	132	52.8	101	40.4	250	100

p-value=0.0024

101 Cases having MCH level <20 pg showed hypochromic picture in 100% cases. 132 cases having MCH level 20-27 pg showed hypochromic picture in (47.6%) cases, (4.8%) cases showed normochromic picture and dimorphic picture was seen only in 1 case (0.4%). 17 cases having MCH level >27 pg showed normochromic picture in 14 cases (5.6%), (0.8%) cases showed hypochromic picture and dimorphic picture was seen in (0.4%) cases. The distribution significantly varied with MCH levels (p value <0.05).

4. DISCUSSION

This study showed that the moderate degree of anaemia (58%) was most prevalent type followed by mild degree (30.60%) and severe degree (11.40%) which was in concurrence with the study conducted by S. Jain et al[1] that showed the same results i.e. moderate degree of anaemia predominated (49.8%) followed by mild degree (26.8%) and severe degree (24.3%). Another study conducted by KadhimHasan et al[6] showed mild degree as most prevalent type (55.4%) followed by moderate degree (26.7%) and severe degree (17.9%).

The probable reason for this result may be the asymptomatic presentation of mild anaemia because of which it is ignored. Maximum contribution is of moderate degree as it becomes symptomatic and severe degree is least noted because of underlying pathology that is not commonly found.

A comparison was done to know about the relationship between severity of anaemia and gender and compared with other studies, there was no such marked difference between the severity of anaemia and gender distribution noted. Very mild variation was noted in moderate (i.e. 56.11% for females and 59.6% for males) and severe anaemia (i.e. 13.33% for

females and 10.31% for males). Mild degree of anaemia showed slight difference as 30.56% for females and 30.63% for males[7]. On statistical analysis, there was no significant association observed between gender and severity of anaemia with chi square value of 1.095 and p value of 0.578. These results were in concurrence with the study conducted by Muthuswamy et al[8] on males below 12 years, which showed the same results of mild variation in anaemia severity and gender wise distribution[9].

5. CONCLUSION

In the present study of pediatric cases 0-5 years age group males were most affected and prevalence was more in males as compared to females and the predominant morphological pattern was microcytic hypochromic anaemia. Hence, it is recommended that, this age group is compulsorily screened for anaemia. Study of morphological pattern of anaemia directs us to the further management of underlying etiology.

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