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ORIGINAL ARTICLE

Frequency of Thrombocytosis in Iron Deficiency Anemia

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ABSTRACT

Aim: To determine the frequency of thrombocytosis in iron deficiency anemia
Study Design: A Cross sectional survey.
Study Setting: Pediatric Department of Mayo Hospital, Lahore
Study Duration: 20-07-2019 to 19-01-2020.
Methods: 181 children meeting the inclusion criterion were included in study and 2-3 ml of venous blood was drawn and sent to lab for complete blood count (CBC). Data regarding the MCV, MCH, Platelet count was collected on structured Performa.
Results: Significant association was seen in age and thrombocytosis in cases of IDA ($p<0.05$). There is a highly significant association between anemia, sex and thrombocytosis in the cases of IDA ($p<0.01$).
Conclusion: There is association between thrombocytosis and iron deficiency anemia in pediatric age group.
Keywords: Thrombocytosis, iron deficiency anemia. Frequency

INTRODUCTION

Thrombocytosis is usually discovered incidentally and it is a common clinical problem. Common aetiology of thrombocytosis is a reactive or secondary process. From the non-infectious causes of secondary thrombocytosis, iron deficiency is a common one. IDA is the single common nutritional deficiency all over the world. Thrombocytosis is frequent in children up to 2 years of age and may be because of high incidence of IDA in this age group[1].

All over the world, IDA is the third leading cause of disability and 13th risk factor for the global disability adjusted life years. Mostly IDA presence is in the under developed countries like Africa and Asia[2].

The objective of the study was to determine the frequency of thrombocytosis in iron deficiency anemia

METHODOLOGY

This cross sectional survey was conducted in the Department of Paediatrics, Mayo Hospital, Lahore from 20-07-2019 to 19-01-2020. Sample size is 181. Sampling technique used was non probability convenient sampling. Age of 6 months to 12 years with either gender and children with paller attending OPD were included in the study. Children with thalassemia, evidence of lead poisoning and thrombocytosis with causes other than IDA were excluded. After approval from hospital ethical committee, 181 children fulfilling inclusion criterion were included. 3 ml of venous blood was drawn for CBC and other tests e.g. serum Ferritin, iron and TIBC. Data was entered and analyzed in the SPSS version 17.

RESULTS

In the present study, 54(50%) cases with IDA are in the age of 1 to 5 years while 5(2.76%) cases in the age of >10 years. Thrombocytosis due to IDA is in 27(50%) cases in the age of 1-5 years. Out of 181 cases, males were 127(70%) and females 54(30%). Mild anemia in accordance with thrombocytosis was noted in only 34 females and no males and thrombocytosis was noted among all, moderate anemia was in total 66 subjects (19 males have thrombocytosis and 15 females. and severe anemia was noted in 81 cases from which 46 were males and 35 were females and thrombocytosis was noted in 12 cases in both males and females. The total sample size was 181(127 males and 54 females). In analyzing the severity of anemia in relation to thrombocytosis, all the 6 cases with mild anemia have thrombocytosis while out of a total of 34 cases with moderate anemia, 19 cases (55.9%) have thrombocytosis. Amongst 61 cases with severe anemia, 24 cases (29.6%) suffer from thrombocytosis. A significant association was seen in age, gender, weight, malnutrition and thrombocytosis in the cases with IDA ($p<0.05$) by chi square test.

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Table 1: Thrombocytosis and IDA with respect to age and sex

Age (yrs)	Thrombocytosis		
	Males	Females	Total
<1	16/32(50%)	7/19(36.8%)	23/51(45.1%)
1-5	19/36(53%)	8/18(44.4%)	27/54(50%)
5-10	13/41(31.7%)	2/17(11.7%)	15/58(25.8%)
>10	5/18(27.8%)	0 0	5/18(27.8%)
Total	53/127(41.7%)	17/54(31.5%)	70/181(38.6%)

Table 2: Anemia in relation to thrombocytosis:

Anemia	Thrombocytosis		
	Male	Female	Total
Mild (Hb 10-11) (n=6)	0	34/34 (100%)	34/34 (100%)
Moderate (Hb 7-9.9) (n=33)	15/32 (46.8%)	19/34 (55.9%)	34/66 (51.5%)
Severe(Hb<7) (n=61)	12/46 (26.1%)	12/35 (34.3%)	24/81 (29.6%)
Total (n=100)	27/78 (34.6%)	65/103 (63.1%)	92/181 (50.8%)

Table 3: Thrombocytosis according to age groups

Study variable		n=	%age
Gender	Male	127	70.16
	Female	54	29.83
Age group	<1 yr	51	28.17
	1-5 yr	54	29.83
	5-10yr	58	32.04
	>10 yrs	18	9.94

Table 4: Severity of anemia in relation to thrombocytosis

Effect Modifiers		Thrombocytosis		P value
		Yes	No	
Age	≤ 2.5 yrs	50	105	0.04
	>2.5yrs	20	76	
Gender	Male	53	127	0.01
	Female	17	54	
Malnutrition	Yes	26		0.04
	No	155		
Weight	Under weight	26		0.04
	Normal	155		

DISCUSSION

In the present study, the cases of IDA are 52 cases (50%) of IDA was in the age of 1 to 5 years while 5 cases (2.76%) of >10 years. Thrombocytosis due to IDA is 68.88% i.e. in 31 cases in the age of 1-5 years. This is consistent with one study who concluded that thrombocytosis due to IDA is less common over 61 months of age[3]. In our study, there are 03 cases of thrombocytosis due to IDA in the age of 5--10 years.

In analyzing the severity of anemia in relation to thrombocytosis, all the 6 cases with mild anemia have thrombocytosis while out of a total of 33 cases with moderate anemia, 15(45.45%) cases have thrombocytosis. Amongst 61 cases with severe anemia, 24(39.3%) cases suffer from thrombocytosis. The prevalence of anemia was higher in the present report among children aged 5-15 years. In another study, high incidence is noted by others among children of rural and free urban schools, i.e., mainly belonging to economically weaker sections[4].

In our study, there is mild thrombocytosis i.e. 87.8% in males and 93% in females. These results are in accordance with another study where mild thrombocytosis was reported in 85% of the patients[5]. In another study, there are 102 cases with IDA and thrombocytosis is present in 40 (39.2%) cases[6]. One study showed thrombocytosis in 60% of cases in infants and children aged <2 yrs[7].

CONCLUSIONS

A significant association between iron deficiency anemia and thrombocytosis in this study.

Conflict of interest: None

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