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Short Communication

Anemia: Does it Have Effect on Menstruation?

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Abstract: It is well known fact heavy and prolonged menses leads to anemia. But being anemic do have effect on menstrual cycle as well as menstrual problems. This study was done identify the same. This was a community based cross-sectional study in the rural field practice area of Indira Gandhi Government Medical College, Nagpur in the 600 adolescent girls. Information of details about menstruation was enquired by interview. Anemic status was estimated by haemoglobin estimation. Prevalence of anemia was 90.83%. Anemia was significantly associated with the menstrual cycle length (regularity of cycle) as well as presence of dysmenorrhoea and premenstrual syndrome but not with the age at menarche and duration of flow. Significantly more number of the girls with anemia had irregular menstrual cycle as well as suffered dysmenorrhoea and premenstrual syndrome.
Keywords: Anemia, Menstruation, Adolescent Girls, Menarche, Dysmenorrhoea.

INTRODUCTION

Adolescents (10-19 years) constitute about 22.8% of India's population, approximately one-fifth population of India [1]. Anemia is one of the major public health problems worldwide. It is often ignored in both developed and developing countries. Preschool children, pregnant women and adolescents constitute vulnerable group of anemia [2]**.** In developing countries like India, more than half of the adolescent girls are anaemic [3]. Nutritional deprivation, increased iron demands for adolescent growth, excessive menstrual losses all aggravate and exacerbate pre-existing anemia and its ill effects [4].

Menstruation is an issue in adolescent girl's life with medical, social and psychological dimension. It is a milestone event in female puberty and an important indicator of reproductive health [5]. It is known that heavy as well as menstrual bleeding for prolonged period can lead to anemia. At the same time, being anemic reduces the oxygen supply to the body and can have effects on age at menarche as well as can have menstrual cycle irregularly in terms of cycle length and duration. For certain menstrual disorders studies had been carried out [6-8]. This study also studies effect of anemia on menstrual disorders especially dysmenorrhoea and premenstrual syndrome.

MATERIAL AND METHODS

This was a cross-sectional, community based study conducted in the rural field practice area of Indira Gandhi Government Medical College, Nagpur. Study subjects included adolescent girls in the age group of 10-19 years. Approval from institutional ethical committee was taken before commencing the study. Adolescent girls in the age group of 10-19 years who had achieved menarche were interviewed by pre-designed pretested proforma. Total 600 girls had achieved menarche. Written informed consent of each study participant was taken before starting the interview. Girls who had achieved menarche were interviewed by house to house survey until total sample size was achieved. Detailed history on various parameters of menstruation was collected. Age at menarche was collected by asking exact date of first menstruation; if not possible, month of menarche and the class in which they were studying at that time was asked. Menstrual cycle length was calculated by counting number of days from the first day of the menstrual cycle to and including the day before the next menstrual cycle. Duration of blood flow was calculated by counting the number of days from the start of a bleeding episode to and including the day before the start of bleeding free episode. Amount of flow was calculated by using number of pads used per day by the girl. Irregular cycles were considered as cycles less than 20 days or more than 35 days for at least 1 year. Anemic status of the girls was assessed by doing Hemoglobin

estimation by Sahli's Hemoglobinometer. Statistical analysis was done by percentages, chi-square test, t-test. Statistical significance of differences between groups was tested. p value<0.05 was taken as statistically significant.

RESULTS

According to Table 1, only 9.17% of the girls in rural area were non-anaemic. No girl was having severe anemia.

According to table 2, those having anemia and those having no anemia were compared. In the present study mean age at menarche was 13.419±0.980 years. Out of 429 adolescent girls who had achieved menarche upto the age of 13 years, 399 (93.01%) girls were anaemic and 30 (6.99%) were having normal hemoglobin. The difference was not significant ($\chi 2=2.03$, p=0.1545,df=1)

It was also found that non-anemic girls were having regular menstrual cycle than those with anemia. This difference was significant ($\chi^2=4.78$, p=0.0289,df=1). Though 92% girls having normal haemoglobin had regular cycles than 85.30% of anaemic girls, the difference was not significant ($\chi^2=2.49$, p=0.1146, df=1).Those who were anaemic were more likely to suffer dysmenorrhoea ($\chi^2=10.28$, p=0.0059, df=1) as well as premenstrual syndrome ($\chi^2=32.64$, p=0.0000, df=1).

Table 1: Distribution of adolescent girls according to grades of anemia

Anemia (Hb gm %)	Rural (N=600)	Percentages (%)
Moderate (7-9 gm %)	245	40.83
Mild(10-12 gm %)	300	50.00
Normal (>12 gm %)	55	9.17
Total	600	100

Table 2: Effect of anemia on menstrual parameters and menstrual disorders

Menstrual Parameters	(Haemoglobin gm %)			
	Moderate (7-9) (N=245)	Mild (10-12) (N=300)	No anaemia (>12) (N=55)	p value
Age at menarche				
10	1 (0.40)	0	0	
11	20 (8.16)	4 (1.34)	2 (3.64)	$\chi 2=2.03$
12	79 (32.25)	63 (21.00)	20 (36.36)	P=0.1545
13	63 (25.71)	169 (56.34)	8 (14.55)	df=1*
14	57 (23.27)	56 (18.67)	17 (30.91)	
15	19 (7.76)	6 (2.00)	6 (1.09)	
>15	6 (2.45)	2 (6.67)	2(3.64)	
Menstrual cycle length (days)				
<20	4 (1.63)	0	0	$\chi^2=4.78$
20-35	187 (76.33)	224(74.67)	49(89.09)	P=0.0289
>35	54 (22.04)	76 (25.33)	6 (10.91)	df=1*
Duration of flow				
<2	2 (0.82)	0	0	$\chi^2=2.49$
2-7	207 (84.49)	255 (85.00)	51 (92.00)	P=0.1146
>7	36 (14.69)	45 (15.00)	4 (8.00)	df=1*
Dysmenorrhoea				
Present	151 (61.63)	218 (72.67)	31 (56.37)	$\chi^2=10.28$
Absent	94 (38.37)	82 (27.34)	24 (44.64)	P=0.0059
				df=1*
Premenstrual syndrome				
Present	184 (75.10)	158 (52.67)	27 (49.09)	$\chi^2=32.64$
Absent	61 (24.90)	142 (47.33)	28 (50.91)	P=0.0000
				df=1*

*-Comparision of significance between girls having anemia and having no anemia.

DISCUSSION

Present study showed prevalence of anemia in adolescent girls was 90.83% which is similar to other study in India [9]. Among anemic 50% of the girls were having mild anemia and rest around 41% had moderate anemia. No one had severe anemia. Medical interventions at this time can definitely improve the condition.

While studying association of menstrual parameters and anemia, it was found that anemia was significantly associated with the menstrual cycle length (regularity of cycle) but not with the age at menarche and duration of flow.

Overall Mean age at menarche was 13.342±0.984 years with Median of 13.1years which is similar to findings of many other studies [10-12]. No significant association was found between age at menarche and presence of anemia similar to the findings by Shah BK *et al*. [13], Chavra M *et al*. [14] also showed in their study that under nutrition and anemia delays age at menarche to as much as 1.5 - 2 years.

Anemia was significantly associated with regularity of menstrual cycle. Anemic girls are more likely to have cycles less than 20 or more than 35 days.

One of the important factors associated with prevalence of anemia was excessive bleeding during menstruation. This excessive bleeding leads to anemia and with decreased intake of iron as compared to high requirement during adolescence initiates a vicious cycle. But no significant relationship of anemia was observed with the duration of menstrual flow in present study similar to the findings of Rajni *et al*. [15] and Chavra M *et al*. [14].

Similarly it was significantly associated with dysmenorrhoea and premenstrual syndrome which is also found in a study by Raffia B *et al*. [16].

Though this study revealed association of anemia with menstrual cycle length and menstrual disorders, there are limitations of the study. Many girls in the initial two years have anovulatory cycles which are irregular initially, then becoming regular.this is a very preliminary study which prepares initial frameworks that anemia can be one of the factor for menstrual problems.

CONCLUSION

Prevalence of anemia was as high as 90% though no case of severe anemia was found. Presence of anemia was correlated with occurrence of irregular menstrual cycle as well as dysmenorrhoea and premenstrual disorders.

REFERENCES

1. NCPCR; Status of Children in 14-18 years: Review Of Policy, Programme and Legislative Framework 2012-2013. Available from http://ncpcr.gov.in/view_file.php?fid=466
2. Rati SA, Jawadagi S; Prevalence of anemia among adolescent girls studying in selected schools. International Journal of Science and Research, 2014; 3(8): 1237-1242.
3. UNICEF; Over 50% adolescent girls in India anaemic: UNICEF. One World South Asia. Available from http://southasia.oneworld.net/news/over-50-adolescent-girls-in-india-anaemic-unicef#.VQNEUPmUe7I
4. Ghai OP; Essential Pediatrics. Deptt. of Pediatrics, All India Institute of Med. Science, New Delhi, 2003.
5. Paul D, Gopalakrishnan S; Knowledge and practices of adolescent girls regarding reproductive health with special emphasis on hygiene during menstruation, an ICMR funded research project. National Institute of Public Cooperation and Child Development, 2007: 1-98.
6. Basu S, Srikanta BR, Parmar HR; Prevalence of anemia among school going adolescents of Chandigarh. Indian Pediatrics, 2005; 42(6): 593-597.
7. Shekhar A; Iron status of adolescent girls and its effect on physical fitness. The Indian J. Nutr. And Dietetics, 42: 451-456.
8. Premalatha T, Valarmathi S, Srijayanth P, Sundar JS, Kalpana S; Prevalence of Anemia and its Associated Factors among Adolescent School Girls in Chennai, Tamil Nadu, India. Epidemiol, 2012; 2: 2.
9. Toteja GS, Singh P, Dillon BS, Saxena BN, Ahmed FU, Singh RP *et al*.; Prevalence of anemia among pregnant women and adolescent girls in 16 districts of India. Food Nutrition Bulletin, 2006; 27(4): 311-315.
10. Singh J, Singh JV, Srivastava AK, Suryakant; Health status of adolescent girls in slums of Lucknow. Indian Journal of Community Medicine, 2006; 31(2): 102-103
11. Shabir I, Ganie MA, Zargar MA, Bhat D, Mir MM, Jan A *et al*.; Prevalence of metabolic syndrome in the family members of women with polycystic ovary syndrome from North India. Indian J Endocrinol Metab., 2014; 18(3): 364-369.
12. Adair LS; Size at birth predicts age at menarche. Pediatrics, 2001; 107(4): E59.
13. Shah BK, Gupta P; Anemia in adolescent girls: a preliminary report from semi-urban Nepal. Indian paediatrics, 2002; 39 (12):1126-1130.
14. Chavada1 MV, Prajapati JD, Rathod DM, Chaudhary P, Agrawal K; Screening of novice adolescent girls for anemia studying in medical and paramedical Colleges at civil hospital campus,

Ahmedabad, Gujarat, India. National Journal of Community Medicine, 2013; 4(2): 337-343.
15. Rajini S; Prevalence of anemia and factors influencing among rural adolescent girls. Indian Journal of Maternal and Child Health, 2010; 12(4):1-7.
16. Bano R; Anemia and its impact on dysmenorrhea and age at menarche. IOSR Journal of Pharmacy and Biological Sciences, 2012; 4(2):21-24.