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Original Research Article

Common menstrual disorders in adolescent girls attending a tertiary care center

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ABSTRACT

Background: Menstrual disorders are an important cause of concern among adolescent girls. Most problems are physiological but few have underlying pathology which has adverse effect on the future reproductive health. Aim of the study was to know the prevalence and to evaluate the underlying cause of the menstrual problems in adolescent girls seeking medical care.

Methods: This is a cross sectional study conducted in 215 adolescent girls aged 13-19 years who sought medical care over a period of 12 months for menstrual complaints from the department of obstetrics and gynecology, Govt. Medical College, Thrissur, a tertiary care center in middle of Kerala, South India. Data was analyzed by SPSS software and p value <0.05 was taken statistically significant.

Results: Dysmenorrhea was the most common problem (57.5%), followed by scanty menstruation (35.35%) and 25.2% of girls suffered from premenstrual symptoms. Hypothyroidism was seen in 2.4% of girls 40% were anemic. Statistically significant association was found between hypothyroidism and features of hyperandrogenemia with cycle irregularity. Ultrasonographic evidence of polycystic ovarian morphology was identified among 61.9% girls with irregular cycles.

Conclusions: Even though majority of menstrual issues are self-limiting proper evaluation and follow up for medical disorders like hypothyroidism and anemia are important and appropriate intervention is crucial for future reproductive and general health of adolescents presenting with Menstrual disorders.

Keywords: Adolescents, Dysmenorrhea, Hyperandrogenism, Hypothyroidism

INTRODUCTION

The word adolescent derived from of the Latin word, adolescent remaining “growing to maturity” WHO defines this phase from 10 years of age to 19 years.¹ Onset of menarche is an important milestone in puberty. Girls suffers various problems during this period. The main problems are psychological adjustment with menstruation, premenstrual symptoms and disorders of menstrual blood flow. Many a times the menstrual irregularities are attributed to incomplete maturation of

Hypothalamic-pituitary-ovarian axis. It may be due to underlying organic causes like polycystic ovarian syndrome, endometriosis or hypogonadism.² In today's world the life style issues like consumption of junk foods and lack of physical activity and exposure to excess stress in school and home are considered as important factors responsible for menstrual disturbances in the adolescent girls.³

Treatment seeking behaviour may be adversely influenced by rigid traditional norms and practices,

ignorance, myths and taboos, lack of adolescent friendly health care facilities etc. Understanding the common menstrual problems and barriers to the treatment seeking behaviour of the adolescent girls will help us in planning effective healthcare implementation programs for this vulnerable group.

The present study aims to assess the prevalence of common menstrual problems in adolescent girls attending outpatient and inpatient clinic in the department of obstetrics and gynecology at Govt. Medical college, Thrissur and to identify the factors associated with these problems.

METHODS

This is a cross sectional study conducted in the department of obstetrics and gynecology over a period of 12 months (October 2016 to October 2017) to analyze the prevalence of common menstrual disorders in adolescent girls aged 13-19 years and to evaluate common causes for them.

Written consent was obtained from the parent or guardian. 215 girls were surveyed by structured questionnaire, which included demographic details, menstrual details, menstrual problems (dysmenorrhea, irregular cycles, scanty/heavy flow, premenstrual symptoms), preexisting medical disorders and relevant family history, lifestyle factors like consumption of junk food, missing of academic activities due to these problems were analyzed. Participants were subjected to relevant investigations. Ultrasound evaluation was done for all. Treatment seeking behavior was also assessed.

Statistical analysis

The data obtained were analyzed using SPSS software. The statistical significance was ascertained by p value <0.05.

RESULTS

The mean age of menarche was 11.16 years and the mean age of presentation 16.45 years. The menstrual characteristics is given in Table 1.

Table 1: Menstrual characteristics of adolescent girls with menstrual disorders in Thrissur, India.

Variables	N (%)
Menarche	
Early <10 years	8 (3.74)
Delayed >15 years	6 (2.84)
Mean age	11.16 years
Cycle length	
<21 days	9 (4.2)
21-35 days	141 (65.4)
>35 days	65 (30.4)
Duration of flow	
<4 days	26 (12.1)
4-7 days	143 (66.8)
>7 days	46 (21.0)
No of pads/day	
<3	50 (23.4)
3-5	147 (68.2)
>5	18 (8.4)
Oligomenorrhoea	65 (30.4)
Polymenorrhoea	9 (4.2)
Heavy cycles	64 (29.7)
Scanty cycles	76 (35.3)
Premenstrual syndrome	54 (25.2)
School absenteeism	106 (49.5)

Table 2: Premenstrual symptoms in adolescent girls with menstrual disorders in Thrissur, India.

Premenstrual symptom	Number	Percentage
Headache	32	59.2
Bloating sensation	9	16
Breast soreness	16	29.6
Sleep disturbance	2	3.7
Mood variation	20	37
Anxiety/ irritability	4	7.4

Most common premenstrual symptom was headache in 32 (59.2%) followed by mood variations 20 (37%) Various premenstrual symptoms and their proportion is given in Table 2. Correlation between body mass index (BMI) and cycle regularity is given in Table 3.

Table 3: Relation between BMI and cycle regularity in adolescent girls with menstrual disorders in Thrissur, India.

BMI (kg/m ²)	Regularity				Total	p value
	Number	Regular %	Irregular number	%		
18.5-23.49	20	9.30%	24	11.16	44	p 0.208
23.5-29.9	72	33.49%	47	21.86	119	
>30	27	12.56%	25	11.63	52	
Total	119	55.35%	96	44.65	215	

No statistically significant association was noted between BMI and cycle irregularity (p 0.208).

Hypothyroidism was present in 2.4% (5/215) of adolescents presented with menstrual disorders. Other medical disorders are shown in Table 4. Statistically significant association was noted between hypothyroidism and cycle irregularity (p 0.002) Table 5.

Table 4: Medical disorders in adolescent girls with menstrual disorders in Thrissur, India.

Disease	Number	Percentage
Hypothyroidism	5	2.4
ITP	2	0.9
Renal disease	2	0.9
Total	9	4.2

Table 5: Relation between thyroid function test (TFT) and cycle regularity in adolescent girls with menstrual disorders in Thrissur, India.

TFT	Regularity				Total	p value
	Regular	%	Irregular	%		
Normal	113	59.8	76	40.2	189	0.002
Hypothyroid	7	27	19	73	26	
Total	120		95		215	

Table 6: Medical disorders and flow duration in adolescent girls with menstrual disorders in Thrissur, India.

Duration of flow	Hypothyroidism		ITP*		Renal disease	
	Number	%	Number	%	Number	%
< 4 days	0	0	0	0	0	0
4-7 days	2	40	1	50	1	50
> 7 days	3	60	1	50	1	50
Total	5	100	2	100	2	100

Table 7: Relation between medical disorders and cycle length in adolescent girls with menstrual disorders in Thrissur, India.

Cycle length	Hypothyroidism		ITP		Renal disease	
	Number	%	Number	%	Number	%
< 21 days	1	20	0	0	0	0
21-35 days	1	20	2	100	1	50
> 35 days	3	60	0	0	1	50
Total	5	100	2	100	2	100

Table 8: Prevalence of hyperandrogenic features in adolescent girls with menstrual disorders in Thrissur, India.

Features	Number	Percentage
Acne	19	8.9
Hirsutism	11	5.1
Acanthosis Nigricans	28	13.1
Total	58	26.9

Among 2 girls with ITP, both had regular cycles and one had heavy cycles. Among, 2 girls with renal disease, one had infrequent heavy cycles. Infrequent heavy cycles were seen in 60% of hypothyroid girls (Table 6 and 7).

Features of hyperandrogenism was noted in 58 girls (26.9%). Acanthosis nigricans was the commonest feature noted (13.1%) Table 8.

Table 9: Relation between hyperandrogenic features and cycle regularity in adolescent girls with menstrual disorders in Thrissur, India.

Hyperandrogenic features	Cycle regularity				p value
	Regular	%	Irregular	%	
Acne	2	10.5	17	89.4	0.00
Hirsutism	2	18.2	9	81.8	0.01
Acanthosis Nigricans	4	14.3	24	85.7	0.00

Girls with hyperandrogenic features had predominantly irregular cycles and the relation was statistically significant (Table 9).

Features of polycystic ovaries were seen in 21 (9.8%) and simple ovarian cyst in 7 (3.3%) and normal ultra sound study in 184 (85.5) Table 10 and among 2 girls with endometrioma, one had frequent cycles. Relation with pelvic pathology and menstrual disorders are shown in Table 11.

Table 10: USG findings in adolescent girls with menstrual disorders in Thrissur, India.

USG finding	Number	Percentage
Normal	184	85.5
Polycystic ovaries	21	9.8
Simple Ovarian cyst	7	3.3
Haemorrhagic cyst	1	0.5
Endometrioma	2	0.9
Total	215	100.0

Table 11: Relation between pelvic pathology and cycle problems in adolescent girls with menstrual disorders in Thrissur, India.

Pathology	Irregular cycles	%	Dysmenorrhea	%
PCOS	13	61.9	10	47.6
Haemorrhagic cyst	0	0	1	100
Endometrioma	1	50	1	50
Simple ovarian cyst	6	85.7	4	57

Table 12: Prevalence of junk food intake and cycle regularity in adolescent girls with menstrual disorders in Thrissur, India.

Junk food intake	Regularity		Irregular	%	Total	p value
	Regular	%				
Weekly	2	20	8	80	10	0.06
Monthly	11	55	9	45	20	
Occasional	107	57.8	78	42.2	185	
Total	120		95		215	

Table 13: Mode of treatment received by adolescent girls with menstrual disorders in Thrissur, India.

Mode of treatment	Number	Percentage
Analgesics	96	44.3
Oral iron	4	1.8
Blood transfusion	1	0.4
Hormonal agents	25	11.2
Total	126	58.6

All girls included in the study report consumption of junk food items at least occasionally. Among 10 girls who consume it on weekly basis, 8 (80%) had irregular cycles. (p 0.06) which is close to significant level

Mode of medical treatment underwent is given in Table 13. Blood transfusion was needed for one girl and 96 (44.3%) used analgesics.

DISCUSSION

The mean age of menarche was 11.16 years and the mean age of presentation 16.45 years. The commonest presenting problem was dysmenorrhea (57.3%). The estimated prevalence of dysmenorrhea varies from 20% to 95% in various studies.⁴ Irregular cycles reported in

this study is 44.65% which is much higher when compared to other Indian studies. Sheetu et al, reported 24.3% of adolescent girls suffer from irregular cycles.⁵ Nirmala et al reported that 29% of girls had irregular cycles in their studies.⁶ In our study infrequent cycles (> 35 days) were found to be common (30.4%) than frequent cycles (< 21 days) (4.2%).

Study did not show any statistically significant association between BMI and cycle regularity though (46.05%) were overweight and obese. Study by Nabila et al had shown statistically significant association between the two.⁷

In this study 29.7% of girls suffered from heavy flow during their cycle. Study by Das et al, showed heavy flow in up to 33.3%, caused by PCOS and hypothyroidism.⁸ Hypothyroidism was the commonest medical disorder noted in the study (2.4%). Infrequent heavy cycles were seen in 60% of hypothyroid girls. Statistically significant association was noted between hypothyroidism and cycle irregularity. Joshy et al, has described cycle irregularity in 78% hypothyroid women, predominantly characterized by infrequent and heavy cycles which is similar to the present study.⁹ In this study 25.2% of girls complained of symptoms of premenstrual syndrome. Sheetu et al, has described 51.5% of girls suffered from premenstrual

syndrome.⁵ The commonest symptom noted in our study was headache followed by mood disturbance.

In this study 21 girls showed ultrasound evidence of polycystic ovaries (9.8%) and out of them 61.9% had irregular periods and 26.9% had hyper and organic features. Statistically significant association was noted between hyperandrogenic features and cycle irregularity. Mumbai based study done by Beena et al, also showed similar prevalence of PCOS (22.8%) and the prevalence of irregular cycles up to 92%.¹⁰ Irregular cycles were seen in 85.7% girls with simple cyst.

Consumption of junk food items on a weekly basis was seen in 4.6% and 80% of them had irregular cycles ($p = 0.06$) which is close to significant level.⁹ Nirmala et al, has shown statistically significant association between consumption of junk food with irregular cycles dysmenorrhea and PMS (pre-menstrual syndrome).

Dysmenorrhea was the leading cause for missed school activities (49.5%). Analgesics were taken by 44.3%. Nirmala et al has also described similar incidence (31%) in her study.⁶ School based study by Resmy et al, had shown that 17.6% of girls sought treatment for dysmenorrhea.¹¹ In a study from Turkey analgesic use in the dysmenorrhea group was higher than in the control group (69.9% versus 46.8%, $p < 0.05$).¹² Anemia was seen in 40.19% but only 1.8% gave history of iron intake. One girl required blood transfusion for severe anemia and 25 girls (11.2%) were treated with hormonal agents.

CONCLUSION

Dysmenorrhea was the most common problem (57.5%) for which the adolescents sought medical care, which was followed by scanty menstruation (35.35%) and heavy flow (29.7%) pre-menstrual symptoms were reported in (25.2%) girls. Dysmenorrhea was a leading cause for missed school activities (49.5%). The most common medical disorder associated was hypothyroidism (2.4%) and 40% girls were anemic and they were not on iron supplementation.

Adolescent girls should be taught to chart their menstrual cycle frequency and regularity and bleeding pattern so that it helps to identify the exact menstrual problems. Clinicians need to focus more on adolescent health and health education programmes. We recommend large studies to be conducted in schools and colleges to find the prevalence of menstrual disorders and their etiologies.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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