RESEARCH ARTICLE

EVALUATION OF MENSTRUAL DISORDERS IN FIRST YEAR FEMALE MEDICAL AND DENTAL STUDENTS

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ABSTRACT

Menstrual disorders represents a significant public health problem for women and it is particularly common is younger age groups. This study aimed to evaluate the prevalence of menstrual disorders like Premenstrual syndrome (PMS) and Dysmenorrhea and their correlation with Basal Metabolic Index (BMI), physical exercise and diet pattern. A cross sectional study was conducted among 200 first year female medical and dental students. All the participants were given a self explanatory questionnaire related to life style and menstrual pattern. 70 % (140) of the students showed symptoms of Premenstrual syndrome and 61% (122) had Dysmenorrhea which was significantly related with severe Premenstrual syndrome. Increase in BMI, frequent Junk food consumption and lack of exercise was associated with PMS and not with Dysmenorrhea. Hence, simple life style changes like diet regulation, regular physical exercise helps to reduce symptoms of PMS among adolescent girls.

INTRODUCTION

Menstruation is the normal physiological phenomenon in a woman which occurs cyclically and reflects her capability for procreation. However this normal phenomenon is not easy one and is often associated with some degree of suffering, almost every woman does experience one or other type of menstrual problem in her life time. The list of menstrual disorders may range from amenorrhea, irregular cycles, Dysmenorrhea and premenstrual symptoms (Nirmala Jaget Lakkawar *et al* 2014). Premenstrual syndrome (PMS) is a commonly used term for a group of emotional, behavioral and physical symptoms that occur in late luteal phase of the menstrual cycle and resolve quickly at or within a few days of the on set of menstruation (Dutta DC *et al* 2010). These symptoms include weight gain, headache, fatigue, nervousness, irritability and mood swings (Cronje HS *et al* 1991). Dysmenorrhea is a common problem in women of reproductive age, which is pain perceived before or during menstruation in women with normal pelvic anatomy, usually begins during adolescence (Anandha Lakshmi S Priy M *et al* 2011). Affected women experience sharp intermittent spasm of pain confined to lower abdomen, back and thighs and of varying severity ranging from mild, moderate to severe. Regular menstrual cycle occur every 28-35days ± 2-3 days in which the menstrual flow lasts for 3-5 days with an average loss of 30-80 ml of blood. Irregular cycle is any deviation from normal duration (Nirmala Jaget Lakkawar *et al* 2014).

Epidemiologically the prevalence of menstrual disorders has been recorded as high as 87% (Narayan KA *et al* 2001) Up to 80% of women of reproductive age experience some symptoms attributed to PMS. About 24-32% women report moderate to severe PMS and 3-8% have very severe form that is premenstrual dysphoric disorder (PMDD) (Nusrat Nisar *et al* 2008, Elif oral *et al* 2012) Dysmenorrhea has a prevalence of 60-93% among female adolescent girls (Nirmala Jaget Lakkawar *et al* 2014 and Anandha Lakshmi S Priy M *et al* 2011) These disorders are particularly common in the younger age group and represent significant public health problem in young girls. 90% of menstrual problems are preventable by early detection and appropriate treatment (Mohite RV *et al* 2013). An etiological relationship between menstrual disorders, BMI, dietary habits, physical exercise and psychological stress may be sought for early prevention. Medical students are at a high risk of developing menstrual irregularities due to stress, irregular food and lack of exercise (Nirmala Jaget *et al* 2014).

With this back drop, a cross sectional study was conducted in 1st year undergraduate female medical students of Sri Venkateswara Medical College and dental students of CKS Teja Institute Of Dental Sciences and Research .Tirupati, as it was assumed that they would have awareness of the presence and severity of their physical, psychological and behavioral symptoms.

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MATERIALS AND METHODS

This study was conducted in the department of Physiology Sri Venkateswara Medical College Tirupati. This study included 200 unmarried healthy (1st Year medical and dental) female students, in the age group of 17-20 Years. The participation was purely voluntary and informed consent was obtained from all the subjects. A self explanatory questionare was given and data was collected from each participant. Back ground information about the respondents include age, education, religion, weight, height, socioeconomic status, dietary habits, physical exercise, family history of Dysmenorrhea and PMS. Questions related to menstruation elucidated variation in menstrual pattern like length of cycle, duration of bleeding period, blood loss per cycle, history of Dysmenorrhea and its severity and premenstrual symptoms. According to the results, symptoms severity was assessed by American College of Obstetrics and Gynecology (ACOG) criteria for PMS (ACOG 2000).

Table 1 Life style and menstrual patterns of participants

S.No	Characters	No of subjects (n=200)	Percentage %
1	BMI		
	• under weight	36	18
	• normal	104	52
	• over weight & obese	60	30
2	Diet pattern		
	• Frequent junk food consumption	108	54
	• Regular home made/Hostel food	92	46
3	Physical Exercise		
	• Yes	80	40
	• No	120	60
4.	Regular cycles	176	88
	Irregular cycles	24	12
5	Duration of flow		
	• 2 days	10	5
	• 3-5 days	148	74
	• 5-7 days	38	19
	• than 8 days	4	2
6	Amount of flow/day		
	• Mild < 2 pads	28	14
	• Moderate 3-5 pads	156	78
	• Severe > 6 pads	16	8
7	Cycle length		
	• $\geq$ 20 day	4	2
	• 21-35 days	176	88
	• > 36 days	20	10
8	Dysmenorrhea		
	• No	78	39
	• Yes	122	61
	• Mild	68	34
	• Moderate	46	23
	• Severe	8	4
9	PMS		
	• Yes	140	70
	• No	60	30
10	Family History		
	• Yes	128	64
	• No	72	36

RESULTS

The collected data was subjected to statistical analysis and results were analysed. A p-value < 0.05 was considered as statistically significant. Among 200 students 140 (70%) were diagnosed to have PMS according to ACOG criteria and 122 (61%) were having dysmenorrhea.

The life style and menstrual patterns of the study group are summarized in table-1

As evident from table - 1 it was observed that among 200 students 12% (24) has irregular periods, 61% (122) suffered from symptoms of dysmenorrhea and 70% (140) were diagnosed to have PMS Other significantly associated factors were diet and physical exercise. 54% (108) had a habit of frequent consumption of junk food and 60% (120) were not having any physical exercise.

Table 2 Association between BMI, Premenstrual syndrome and dysmenorrhea

S.No	Parameter	Under weight BMI < 18 (n= 36)	Normal BMI 18-24 (n=104)	Over weight and obeseBMI 25-30 and > 35 (n=60)	p-value
1.	Students with Premenstrual syndrome	26 (18.57%)	72 (51.43%)	42 (30%)	0.04
2.	Students with Dysmenorrhea	24 (19.67 %)	62 (50.82%)	36 (29.51%)	0.26

As per table-2 BMI had significant association with Premenstrual syndrome (p-value < 0.05) where as dysmenorrhea had no significance (p-value > 0.05)

Table 3 Association between Diet pattern, Premenstrual syndrome and Dysmenorrhea

S.No	Menstrual Disorder	Frequent Junk food		Regular home made/Hostel food		p-value
		Yes	No	Yes	No	
1	Premenstrual syndrome	82 (58.3%)	26 (43.3%)	58 (41.42%)	34 (56.66%)	0.05
2	Dysmenorrhea	68 (55.73%)	40 (51.28%)	54 (44.26%)	38 (48.71%)	0.04

Table-3 analyses that the diet pattern of frequent junk food consumption was significantly associated with premenstrual syndrome (p< 0.05) and not with dysmenorrhea (p> 0.05).

Table-4 Association between Physical exercise, Premenstrual syndrome and Dysmenorrhea

S.No	Menstrual Disorder	Physical exercise		Without Physical exercise n=120		P Value
		Yes	No	Yes	No	
1	Premenstrual syndrome	36 (25.7%)	44 (73.3%)	104 (74.3%)	16 (26.7%)	0.01
2	Dysmenorrhea	52 (42.6 %)	28 (35.9%)	70 (57.4%)	50 (64.1%)	0.31

Table 4 shows that there was a strong association between lack of Physical exercise and Premenstrual syndrome (p< 0.05) but not with dysmenorrhea

Table 5 Association between Premenstrual syndrome and dysmenorrhea

S.No	Intensity of dysmenorrhea n=122	With Premenstrual syndrome n=98	Without Premenstrual syndrome n=24
1	Mild	54 (44.2%)	14 (17.9 %)
2	Moderate	38 (31 %)	8 (10.6%)
3	severe	6 (4.9%)	2 (2.6%)

Table-5 Shows that out of 122 students experiencing some degree of dysmenorrhea 98 suffered from premenstrual syndrome suggesting a strong correlation between dysmenorrhea and Premenstrual syndrome.

DISCUSSION

Menstruation is an inevitable part of woman's life and an important indicator of normal sexual and reproductive health. Any change in this menstrual pattern in the reproductive age group may affect physical, physiological and psychological well being. However this normal phenomenon is not an easy one and is often associated with some degree of sufferings, inconvenience and embarrassment. Numerous studies on menstrual abnormalities in college students were conducted in relation to the life style and the types of menstrual abnormalities and their correlation with BMI, consumption of junk food and physical exercise. Though these conditions are not life threatening they have serious impact on quality of life especially on physical and mental health of many women (Anandha Lakshmi S Priy M *et al* 2011and MC Hichialami KH *et al* 2002).

In our study we attempted to correlate various life style factors like consumption of junk food, physical exercise and BMI with menstrual problems experienced by the female medical and dental students. The out come of study was frequency of PMS was as high as 70% (140 out of 200) and 122 of participants reported some degree of dysmenorrhea and majority of those with dysmenorrhea were in PMS group. Various biological and psychological causes have been proposed as causes of PMS including abnormal serotonin function, the absence of progesterone, altered endorphin modulation of gonadotrophin secretion, lack of exercise, smoking, alcohol use, poor dietary habits and caffeine consumption (Dereboy C *et al* 1994). Prostaglandins, the hormones that cause muscle contractions and decrease blood flow and oxygen to the uterus are thought to be the cause of dysmenorrhea (Campbell MA *et al* 1999).

Increase in BMI was significantly associated with PMS but not with dysmenorrhea (Anandha Lakshmi S Priy M *et al* 2011 and Deshpande H *et al* 2013). The students consuming junk food on regular basis showed a significant association with PMS (Nirmala Jaget Lakkawar *et al* 2014 and Anandha Lakshmi S Priy M *et al* 2011), not with dysmenorrhea (Anandha Lakshmi S Priy M *et al* 2011, Elif Oral *et al* 2012 and Rupa Vani K *et al* 2013). Junk food being rich in saturated fatty acids might interfere with metabolism of progesterone in luteal phase of menstrual cycle causing PMS. Significant association was observed with physical exercise and PMS. Students performing regular physical exercise suffered less from PMS but no relation to dysmenorrhea. (Nirmala Jaget Lakkawar *et al* 2014, Anandha Lakshmi S Priy M *et al* 2011 and Rupa Vani K *et al* 2013). Regular physical activity helps to maintain ideal body weight, increases insulin sensitivity, increases BMR and releases endorphin which in turn helps in regularization of menstrual cycle, reduction in PMS and over all feeling of well being (Rupa Vani K *et al* 2013 and Teixeira AL *et al* 2013).Dysmenorrhea was extensive among the study subjects and has a significant association with PMS. Majority of those with dysmenorrhea were in PMS group. Premenstrual syndrome is also significantly associated with family history (Nusrat Nisar *et al* 2008).

CONCLUSION

The finding of our study suggests that frequency and morbidity of premenstrual syndrome was most common among adolescent girls who had adverse effects on the quality of life emotionally and physically. Hence even simple recommendations like diet regulation and physical exercise may help to reduce symptoms of Premenstrual syndrome and dysmenorrhea as dysmenorrhea seems to be strongly related to severe Premenstrual syndrome. Hence such studies conducted may help to plan out strategies for better detection and management of Premenstrual syndrome in adolescent girls.

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