ORIGINAL ARTICLE

Frequency and Severity of Primary Dysmenorrhea in Adolescent Females

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ABSTRACT

Aim: To determine the frequency and severity of primary dysmenorrhea in adolescent females.

Study Design: Descriptive cross-sectional study

Place and Duration: The study was conducted at obstetrics and gynecology unit 1, Holy Family Hospital from 11-07-2017 to 11-01-2018.

Methodology: One hundred and thirty five adolescent females with ages 15 to 19 years having menstruation for at least 1 year were enrolled. After taking informed written consent detail demographics including age, weight, body mass index and complete blood picture were recorded. Dysmenorrhea was defined as crampy or severe painful sensation in lower abdomen occurring just before or during menstruation. . Each female was recorded in the structured proforma attached as Annex 1 and was divided into underweight and overweight study groups and analyzed accordingly. All the data was analyzed by SPSS 24.0.

Results: Mean age of patients was 16.87 ± 1.38 years, mean BMI was 26.42 ± 2.51 kg/m^2. Dysmenorrhoea was present 75/135 (55.6%) patients while it was absent 60/135 (44.4%). There were 59/135 (43.7%) patients below 25kg/m^{2}BMI and more than 25kg/m^2 were 76/135 (52.3%).In BMI < 25kg/m^2 dysmenorrhea was found in 25 (42.4%), while In BMI > 25kg/m^2 dysmenorrhea was found in 50 (65.8%), significant association was found between body mass index and presence of dysmenorrhea with p-value 0.007.

Conclusion: Dysmenorrhoea was present in 55.6% adolescent females. Presence of dysmenorrhea was significantly higher in BMI > 25kg/m^2 as compared to BMI < 25kg/m^2.

Keywords: Dysmenorrhea, Adolescent Females, Body Mass Index

INTRODUCTION

Menstruation in women after puberty is a common occurrence, often confused with dysmenorrhoea. Primary dysmenorrhea, where there is no apparent pelvic pathology, is characterised as painful menstrual cramps. This symptom typically occurs within one to two years of menarche and menstrual cycle stabilisation[1]. Pain occurs a couple of hours before or after menstruation and lasts for 12 to 72 hours. Dysmenorrhea can also be accompanied by nausea, discomfort, low back pain, or flank pain.

Around 29-90 percent of women worldwide suffer from dysmenorrhea[2]. Even 10-12 percent of women suffer from serious dysmenorrhea, as statistics show[3-5]. Primary dysmenorrhea is a common problem for women and young women and its monthly repetition decreases their quality of life and their results. Dysmenorrhea leads to a lack of work in approximately 34-5% of women and 40% of school absentees are due to this problem[6]. According to annual reports in the United States dysmenorrhea leads to the loss of approximately 600 million or two million hours per year and decreases the quality of women's results[7].

Obesity in women adolescents is one of the factors associated with dysmenorrhea. In Iran, the prevalence of obesity was estimated at 22-40%[8]. Endometrium production of physiological prostaglandin is increased in primary dysmenorrhea. Increased prostaglandin directly contributes to uterine contractions that eventually lead to primary dysmenorrhoea. Overweight and obesity is thought to be correlated with dysmenorrhea by increasing the development of prostaglandin[6].

Overweight and obesity can help with menstrual issues, such as primary dysmenorrhea[9]. There are many studies of the effect of the BMI on dysmenorrhea[10-11]. Dysmenorrhea is caused by a variety of tests, including different physiological, cultural and psychological causes. Furthermore, the incidence of this issue is affected by unhealthy diet, age, obesity, family history and decreased daily frequency of breakfast foods[12,13]. Although some studies have shown a link between BMI and the incidence and severity of dysmenorrhea[14,15]. We conducted present study with aimed to determine the frequency of primary dysmenorrheal and its severity among adolescent females also compare the frequency and severity of primary dysmenorrhea in adolescent female with body mass index more than 25 kg/m^2 to those with body Mass Index less than 25kg/m^2.

MATERIALS AND METHODS

This descriptive/cross-sectional study was conducted at obstetrics and gynecology unit 1, Holy Family Hospital from 11-07-2017 to 11-01-2018. Total 135 adolescent females with ages 15 to 19 years having menstruation for at least 1 year were enrolled. After taking informed written consent detail demographics including age, weight, body mass index and complete blood picture were recorded. Females who have any diagnosed gynaecological disease as endometriosis, adenomyosis and pelvic inflammatory disease were excluded.

Dysmenorrhea was defined as crampy or severe painful sensation in lower abdomen occurring just before or during menstruation. . Each female was recorded in the

structured proforma attached as Annex 1 and was divided into underweight and overweight study groups and analyzed accordingly. All the data was analyzed by SPSS 24.0. For categorical variables like BMI >25kg/m^2 or <25kg/m^2, severity of dysmenorrhea, presence or absence of dysmenorrhea. Frequencies along with percentages were calculated. For continuous variables like age, height, weight and exact BMI, scores, mean and standard deviation were calculated. To compare the proportion of patients with primary dysmenorrhea in study group with BMI >25kg/m2 with study group <25kg/m^2, Pearson's chi square test at 5% level of significance was applied. P-value < 0.05 was considered statistically significant. Effect modifiers like age, duration of menstruation were controlled by stratification. Post stratification chi square test was applied.

RESULTS

From 135 patients, it was observed that the minimum age was found 15 years and maximum age was 19 years with mean and standard deviation of the age was 16.87 ± 1.38 years. The minimum BMI score was 22 kg/m^2 and maximum was 30 kg/m^2 with mean and standard deviation of the BMI was 26.42 ± 2.51 kg/m^2. While minimum height was 4 feet and maximum was 5.2 feet with mean and standard deviation 4.49 ± 0.34. The minimum weight was 18kg and maximum was 34kg with mean and standard deviation of the weight was 23.12 ± 4.18. (table 1)

Table no 1: Baseline details of all the patients

Variable	Minimum	Maximum	Mean	Std. Deviation
Age (year)	15	19	16.87	1.38
BMI score	22	30	26.42	2.51
Height (feet)	4	5.2	4.49	0.34
Weight (kg)	18	34	23.12	4.18

Dysmenorrhoea was present 75/135 (55.6%) patients while it was absent 60/135 (44.4%). (Figure 1)

Figure No 1: Frequency of Dysmenorrhea
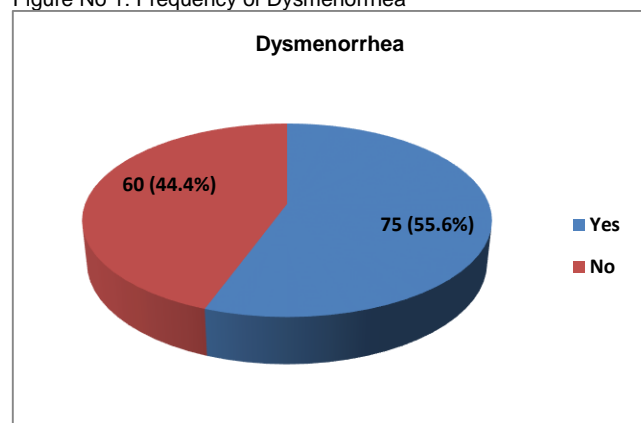
Out of 75 females with dysmenorrhea, the severedysmenorrhea was found in 25 (33.3%), moderatedysmenorrhea in 31(51.4%) and milddysmenorrhea was found in 19 (25.3%) patients. (Table 2)

Table No 2: Distribution of severity of Dysmenorrhea

Severity of Dysmenorrhea	Frequency	Percent
Severe	25	33.3
Moderate	31	41.4
Mild	19	25.3
Total	75	100

There were 59/135 (43.7%) patients below 25kg/m^{2}BMI and more than 25kg/m^2 were 76/135 (52.3%).In BMI < 25kg/m^2 dysmenorrhea was found in 25 (42.4%), while In BMI > 25kg/m^2 dysmenorrhea was found in 50 (65.8%). By using chi-square test it was observed that significant association was found between body mass index and presence of dysmenorrhea with p-value 0.007. (Table 3)

Table No 3: Comparison of Dysmenorrhea in Both groups of BMI

BMI	Presence of Dysmenorrhea		Total	P-value
	Present	Absent		
<25kg/m2	25	34	59	0.007
>25kg/m2	50	26	76	
Total	75	60	135	

DISCUSSION

In the present analysis, we confirmed the mean age of participants to be 16.87 years. Subjects of this analysis had a mean and standard deviation of the BMI score of 26.42 ± 2.51 kg/m2. Although the average height of students was 4.93 and the average of SD was 4.49. The participant's average of weight was 23.12 kilogrammes with a standard deviation of 4.18 kilogrammes.

The mean age, body mass index (BMI) and the age at menarche in the participants were 15.94±1.17 years, 21.16±3.36 kg/m2 and 12.92±1.05 years, respectively. The rate of menstrual ill health was 85.31 percent. The prevalence of dysmenorrhea was greater in subjects with average weight rather than overweight or obesity. No association was seen between the seriousness and length of dysmenorrhea to the BMI of participants. Dysmenorrhea had a strong correlation with puberty and menstrual symptoms. Dysmenorrhea was one of the most prevalent disorders among teenage girls. However, the link between BMI and dysmenorrhea was negligible. [16].

Dysmenorrhoea was observed in 55.6% of the patients while it was missing in 44.4% of the cases. Of the 75 females with dysmenorrhea, extreme dysmenorrhea was the key state in 33.3 percent, moderate dysmenorrhea was found in 51.4 percent and mild dysmenorrhea was found in 25.3 percent.The BMIs of the female patients were below 25kg/m2 and more than 25kg/m2 were 43.7 and 52.3 percent respectively. In the circumference < 25kg/m2 dysmenorrhea occurred in 42.4% and in circumference > 25kg/m2 dysmenorrhea occurred in 65.8%.

Dysmenorrhea was reported in 84.2% (261) of females and 15.8% (49) of females reported no dysmenorrhea. 34.2 percent of the girls had extreme pain, 36.6 percent of the girls had moderate pain, and 29.2 percent of the girls had mild pain. As found by this report, the duration of bleeding among adolescents in Singapore is correlated with having dysmenorrhea. With presence of clots, girls had 2.07 times higher risk of developing dysmenorrhea (OR: 2.07; 95 percent Almost fifty-three-

and-seven percent of girls having family history of dysmenorrhea experience the disorder themselves (χ^2 = 11.5; P< 0.001). Girls with family history of dysmenorrhea were 3 times more likely to have the same issue (OR: 3.0; 95% CI: 1.5–5.8; P = 0.001). Dysmenorrhea is found to be very common among college going women. Bleeding length, family history, and presence of clotting are important risk factors for dysmenorrhea. [17].

By using chi-square test it was observed that substantial association was found between body mass index and presence of dysmenorrhea with p-value 0.007.There was no significant association between BMI and presence of dysmenorrhea having p-value = 0.074 in duration of menstruation < 3 years group while in duration of menstruation > 3 years group significant association was found between BMI and presence of dysmenorrhea having p-value = 0.045.There was no significant association between BMI and presence of dysmenorrhea having p-value = 0.193 in age group < 17 years while in duration of menstruation > 3 years group significant association was found between BMI and presence of dysmenorrhea having p-value = 0.041.[18]

The prevalence of dysmenorrhea was found to be much high amongst 400 girls in this research (81.5 percent rural and 76 percent urban). Overall, most of the girls who reported pain and discomfort from dysmenorrhea had average weight, or overweight. Both girls with mild to extreme dysmenorrhea had low body mass index. In urban setup, of all girls who suffered from moderate dysmenorrhea, 38.05% were underweight and 54.86% were of average weight. 80 percent of women with serious dysmenorrhea had a BMI under 16.5. All girls with no dysmenorrhea were well. The relationship between dysmenorrhea and BMI was important (p<0.01) with increased prevalence in the low BMI community. Improving the nutritional status of teenage girls will reduce their menstrual pain. [19].

About 11 percent of surveyed women aged 22-27 years were obese, and 7 percent were underweight. Women who are underweight, and obese are substantially more likely to experience painful menstruation (OR 1.22, 95 percent CI 1.11, 1.35). Women who are underweight faced a slightly higher risk of coronary heart disease relative to other women who didn't lose weight in their adulthood (OR 1.28, 95 percent CI 1.02, 1.61). The risk of stroke in obese women decreased as they lost weight (OR 1.06, 95% CI 0.84, 1.34). [20]

CONCLUSION

Dysmenorrhea was present in 55.6% adolescent females from which extreme dysmenorrhea was 33.3% and moderate dysmenorrhea was 51.4% and mild dysmenorrhea 25.3%. Presence of dysmenorrhea was significantly higher in Body Mass Index (BMI) of > 25kg/m2 as opposed to BMI < 25kg/m2. Women appear to have increased vulnerability during these periods because of different physiological factors.

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